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HILLYARD'S
PRACTICAL
FARMING & GRAZING

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C. K. OGDEN

A. A. Emerson.
Nether Hall.

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HARMING AND FEEDING OF SHEEP

WITH OBSERVATIONS ON THE

BREEDING AND FEEDING OF SHEEP

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BY G. HILLYARD

RESIDENT OF THE

SECOND EDITION

NEW YORK

NEW YORK

NEW YORK

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**PRACTICAL
FARMING AND GRAZING,
WITH OBSERVATIONS
ON THE
BREEDING AND FEEDING OF SHEEP AND CATTLE;
ON RENTS AND TITHES;
ON THE MAINTENANCE AND EMPLOYMENT OF
AGRICULTURAL LABOURERS;
ON THE POOR LAW AMENDMENT ACT;
AND ON OTHER
SUBJECTS CONNECTED WITH AGRICULTURE;**

BY C. HILLYARD, ESQ.

PRESIDENT OF THE NORTHAMPTONSHIRE FARMING AND GRAZING SOCIETY.

SECOND EDITION.

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1837.

PREFACE.

In 1834, I wrote a Summary of Practical Farming, exclusively for the use of my Son, in case he should ever occupy any land attached to any living he might hold; or should he let any, that he might be enabled to judge whether it was injured by over cropping or bad management. But as several friends expressed a wish for a copy, I had 150 printed, to give away. As many, afterwards, were desirous of having this little book, I printed and published it, in 1836, with many additions. This having been chiefly disposed of, I have been induced to publish a second edition, in which is concentrated a detail of the practice I have pursued and the opinions I have formed, during a period of more than thirty years devoted to agriculture. My chief aim has been to give the particulars of my practice in as clear a manner as possible, without attempting any alteration of my usual plain style. Many others, I am aware, write far more ably, but if they are not practical farmers, the inexperienced who might be induced to follow their theory in all they recommend, are liable to be led into many errors.

When first I began farming, I tried to get information from such works on agriculture as were then in the highest repute; but I found them so verbose and so theoretical, that I soon laid them aside, and took every opportunity of inspecting such farms as were supposed to be best cultivated, and of gaining all the information I could from those who were esteemed the best practical farmers.

The general agriculture of this kingdom has no doubt greatly improved within the last thirty years, and the county of Northampton has fully shared in such improvement, although it cannot be justly said to have made such advances in this most important science as not to be still capable of much greater improvement. Necessity is

a powerful spur to industry and contrivance—a truth sufficiently proved by the fact that the greatest improvements in farming were begun on the poorest soils. Necessity compelled the occupiers of such soils to exert themselves to the utmost, and to become good farmers, to gain a maintenance. Nature has been kind to this county, and given to the greater part of it a very productive soil; and therefore formerly too much was left to nature; art and great exertion were not much needed to raise such crops as enabled the farmers to live. The case, however, is now widely different: with the most productive soil, great exertion is absolutely necessary. In former times, old persons have often said to me—"there is no farming like the old farming." Such prejudices have died with them; the present generation of farmers are more enlightened, they are not, as their predecessors were, opposed to all suggested improvements of cultivation.

C. HILLYARD.

Thorpelands, near Northampton, March, 1837.

TO THE RIGHT HONORABLE

THE EARL SPENCER,

Patron of the Northamptonshire Farming & Grazing Society.

MY LORD,

That you should have allowed me the honor of dedicating this little product of my agricultural knowledge to your Lordship, claims my first and best acknowledgments; while, permit me to add, the eminent part you have taken in the support of that cause which it seeks to advance, seems to invest you with a right of patronage to which few can be entitled. I desire not to flatter you, my Lord, or to offer you that adulation which is ever offensive to a noble and upright mind, but this I can say with truth, that the high gratification I feel in prefixing your honorable name to this little work, arises more from the veneration in which I hold your Lordship's character, than even as considering you the generous and distinguished patron of agriculture.

I am, my Lord,

Your Lordship's most obedient, humble servant,

C. HILLYARD.

Thorpelands, March, 1837.

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C. HUBBARD.

Thorpe, March, 1837.

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A SUMMARY OF PRACTICAL FARMING.

Theory and practice, in agriculture as in every pursuit, are two very different things. Scientific agricultural theorists, condemn many common agricultural practices, because they are unacquainted with the circumstances which compel the performance of them. I do not mean, in saying thus much, to deny that very many of the improvements in agriculture have been introduced by scientific persons. Experiments in agriculture, on any large scale, should be tried by those to whom it is of no material consequence should they not succeed, and loss be sustained. Experiments frequently have answered in particular seasons, which, on trial afterwards in common seasons, have failed. It is necessary, therefore, for those who farm for a livelihood, to be very cautious in entering into expensive experiments. I should recommend persons beginning to farm, to copy the management of the reputed best farmers in their neighbourhood ; for the same routine of crops for the same description of land in one part of the kingdom, may not be the most profitable for another part.

Although there are numerous kinds of soils, all the different varieties may be brought into two classes—turnip land, and wheat and bean land. In the first are sands, sandy loams, gravel, flint, limestone, and chalk. The second consists of the different kinds of clay soils. Fen land may be deemed to form another class of soil. The greatest part of the land that I have occupied has been turnip land, and that chiefly sand and sandy loam. I beg it therefore to be understood that the system of farming to which my observations and recommendations will generally be directed, is that which is calculated for those soils.

I strongly recommend all those who enter into farming, either for employment, amusement, or to reclaim land that has been injured by a bad tenant, under no consideration whatever to attempt the cultivation of a poor clay soil,

where the tillage is laborious and the produce of the land always small. The labour in cultivating a poor sand is not great, and therefore it may be improved without ruinous expense. I know of no employment so wretched, at this time of low prices, as the cultivation of a poor clay soil; a decent livelihood cannot be obtained by the most industrious and best manager; by the sweat of his brow, a truly hard-working man may get a bare subsistence, but nothing more.

The grand desideratum of arable land is, to have it free from couch, and weeds of all kinds; well drained where necessary, and sufficiently manured. Much arable land may be over-manured for producing a good quality of corn, but not for the production of green crops; the more luxuriant and abundant they are the better, and the greater will be the return of nourishment to the land. A great part of a good Swedish turnip crop may be carted off to be consumed in the fold yard, to turn the straw into good manure for the next year's crops. No one can doubt that eating off turnips on sound, dry land, does much good; but ploughed land may be so over-manured as to produce an abundance of straw, with a short quantity of an inferior quality of grain; and the clover crop, from being smothered in its growth, spoiled. On the rich, sandy loam of Thorpeland's I have frequently had two good green crops together, with manuring only for the first; nearly the whole of both of them has been carried off, and I have had the next year as good and clean crops of wheat or barley as I could wish; such in fact, I have at this time, from having turnips first, mangel wurzel the next year, and wheat sowed as soon as the mangel wurzel was carted off. If a farm is kept free from twitch, and other noxious weeds, and produces good crops, the system acted upon—if not more than ordinarily expensive—cannot be bad, be it what it may. The best course of cropping for the poor light soils is—turnips (eaten on the land by sheep,) barley, seeds two years, eaten off by sheep; and wheat. For better soils—turnips, barley, clover mowed, wheat. The land all round Holkham, which is a poor sandy soil, is—excepting in one instance—farmed beautifully on the drill system, and so is the greater part of Norfolk; but it is a large

county, and in some parts of it I have seen some as bad farming as I ever saw. I think it would be difficult to find in any part of the kingdom, for ten miles together, much better arable land than there is on both sides of the road from Northampton to Wellingborough. Some parts of it are very well cultivated, other parts might be better managed. It is not keeping to a good course of cropping that will make good farming. The farmer's best exertions, thought, and forethought, are requisite to insure that all the labour bestowed on the farm is done in the way the most likely to turn to the best account. The master's eye is continually necessary; there are but few even of the best labourers that do not need direction as to the manner in which the work they are about is to be done. Boys from 12 to 16 years of age, at wages from one-fifth to one-third of men's, may be profitably employed, if the master will take the trouble of looking sharply after them. It is a stipulation with all Mr. Coke's tenants, that they are never to have two white grain crops in succession. On some parts of some of the best farms, it would perhaps do no injury; still, however, it is quite necessary to have one general rule laid down for the whole of Mr. Coke's numerous tenantry. The object in view in having two crops of white grain in succession, no doubt is profit. Now in my farming calculations near the end of the book, and which I flatter myself are pretty correct, I make it appear that the four-course system will produce one-fourth more profit than the six-course. A six-course system may be arranged by having one field in its turn cultivated in this way. Immediately after harvest, dung a part of the stubble, and sow rye; (one bushel will be sufficient for spring fodder for four cart horses): half of it for the first spring cutting, the other half with vetches for the second cutting: the rye and vetches together are better for the horses than the vetches are by themselves when cut before they are in flower, and are so very succulent; besides which the rye holds the vetches up in their growth: then sow as many vetches as may be wanted for green food for horses, or to be eaten off by sheep in the spring, or to stand for seed—sowing as the rye and vetches are mowed or eaten off in the spring and summer, common white turnips. The

first sowing might be Swedes, at one ploughing with a skim coulter; thus the roots of the vetches or weeds will be placed at the bottom, and be as manure: without the skim coulter the weeds would be likely to spring up in the seams of the ploughing. On other parts of this field potatoes may at the proper time be planted (with dung), to produce as many as are likely to be wanted for consumption in the house, or by pigs. On the other parts of the field might be sowed, in the previous crops of white grain, ryegrass for seed, or trefoil for sheep, or trifolium harrowed or scuffled in after harvest, on a stubble. Common turnips after these, and if the land is clean, and in a fair state of cultivation, a useful crop of them may be obtained, even without manure, if none can be had. Should the land be in a neighbourhood where lime is to be had at a moderate price, it would be a good time to make use of it. Of course the next year barley or oats, and the year after a regular turnip fallow. By an arrangement of this kind, landlords' objections to two crops of white grain in succession are removed. Restrictions as to the course of cropping on poor light soils can be adhered to, but on poor stubborn clay land they frequently cannot; it often proving from the the state of the weather quite impossible to give the land the necessary stirrings for the intended crop. All the conditions which tenants of such land can be expected to enter into are, not to let the farm be in a foul state, or impoverished by over-cropping. Although I never occupied a clay-land farm, I had (until I laid it down in permanent pasture) a small quantity of very stubborn and difficult land to work. The conclusions I have come to for the management of clay land are these. It is my decided opinion, in opposition to some agricultural writers, that summer fallows on most strong clay land are indispensable: not all to be what is called a dead fallow, for, as vetches are so essential for soiling the cart horses, and making a good yard full of manure, and also for sheep in the spring, I should sow a great portion of the fallow land with them, and as soon after harvest as it is possible, for the earlier they are fit to stock with sheep or to cut, the greater their value. The vetch land, of course to be manured, the other part, for which there may be no manure, to be folded. I should grow as many potatoes as

would be wanted for family use, and for pigs, and as I know that mangel wurzel will grow on stronger land than it is generally supposed it will, I should try to raise it, for on such a farm it would be most useful for milking cows and weaning calves. As the seed shoot has great difficulty in getting out of strong land, the best way to raise a crop is, to have a piece of land well manured and pulverised, for the seed to be sown in the middle of April, and transplanted when the size of a radish, either on manured ridges of the usual width, or on the level, fourteen inches asunder. A few cabbages also would be useful, even if they did not grow to any size. No one can tell how to manage a clay land farm so well as the occupier of it, if he really has a knowledge of farming; for different kinds of clay land differ so much in their power of production, and in the necessary management. The different rotation of crops which I have to suggest, are these:—Fallow—Wheat or Barley—Clover (two years)—Wheat—Beans, or Peas, or Oats; or, Fallow—Barley—Clover (one year)—Wheat—Beans—Oats.

Persons who saw the farm of a great writer on agriculture five-and-thirty years ago, reported that it was kept in a most slovenly manner. The writer of this pamphlet is desirous that those whom chance may bring near his farm should see whether his practice corresponds with his recommendations. He is well aware that he cannot show on his farm such perfectly straight lines of ploughing, drilling, and ridging, as are to be seen in Norfolk. The fact is he never had a first-rate ploughman, and being likely to keep on the same men he has had many years, he now doubts whether he ever shall be able to show perfectly straight lines of ploughing, drilling, and ridging.

No one has done so much to improve the agriculture of England as Mr. Coke. It was justly said by a late eminent writer, that he would be the greatest benefactor to his country who could make two blades of corn grow where only one grew before. From Mr. Coke's influence and exertions in Norfolk, the growth of corn has increased there more than ten-fold; and from the general introduction of the Norfolk system of turnip-husbandry, it may be fairly estimated that two blades of corn throughout

Clay

the country are at this time produced, where only one grew before ; besides which, there are now more *stones* of fine beef produced in Norfolk than there were *pounds* of commonly-fed beef when Mr. Coke first came into possession of his estate. This justly estimable person may, therefore, be considered as one of the greatest benefactors to his country, and it must be a most satisfactory reflection to him in these his latter years, to feel that he has by his exertions rendered his country such important services.

It must be very gratifying to those who take an interest in agriculture, to know that the King takes very great interest in that pursuit. His Majesty when at Windsor, generally looks round his farms two or three times a-week ; one is called the Norfolk, the other the Flemish farm. These, by a letter of introduction from Sir William Fremantle, I saw just as this harvest was beginning. It is much to the credit of the superintending steward, Mr. Kendal, that such good crops of corn are produced on so poor a clay soil as that of the Flemish farm.

An agricultural tour through England and Scotland was recently made by Baron Eckarstein, of Proctzel, near Berlin. The examination of the agricultural implements of this country, and the purchase of Southdown ewes to cross with his Merino sheep, were peculiarly the objects of the Baron's visit. Having purchased in London a copy of the former edition of this little work, he was induced to visit the writer at Thorpelandts. He arrived on the morning of the 17th of August, and passed the entire day with me. The Baron farms on an immense scale, and his crops would not a little astonish our British farmers. He cultivates annually 2,000 acres of potatoes, producing from 225 to 300 bushels per acre, according to the quality of the soil. One-fourth of this produce is consumed by his sheep ; the remaining three-fourths being distilled into a brandy which the Baron describes as resembling whiskey. The soil of his farm is a sand, too light, he says, to grow wheat. But it appears that after potatoes he can raise as large a quantity of rye and barley as can be raised on the good fair quality of sandy soils in this country. Having no pasture land, the chief part of his barley is consumed by his sheep. With the aid of gypsum he can raise clover, but

not without. Perhaps a hint may be gained from this fact with reference to the clover sick land of this country. It appears that the people in the Baron's neighbourhood are not desirous of eating any other than rye-bread; therefore wheat is not attempted to be grown, and it is believed it would not answer; there can be little doubt that land which produces such good crops of barley would produce wheat. I conclude however that the Baron's chief source of profit is derived from his potatoes; and that the land which is enriched by the sheep consuming the barley upon it, is afterwards planted with them. He also produces and exports a considerable quantity of rape seed.

As a proof of what good land, well manured and kept clean, may be brought to produce, I will state the cropping of one piece of land, of twelve acres, at Thorpeland, for sixteen years. 1820, wheat—1821, turnips, drawn off—1822, wheat, so luxuriant as to be mildewed, and of little worth—1823, wheat, a good crop—1824, broad clover, mowed—1825, wheat, producing five quarters to the acre—1826, half turnips, half mangel wurzel, all carted off—1827, the same, without any additional manure; the turnips where the mangel grew, and the mangel where the turnips grew, and nearly the whole carried off—1828, barley, producing seven quarters to the acre—1829, clover, mowed twice—1830, wheat, fine crop—1831, barley—1832, half of the piece of land mangel wurzel, the other half, oats, which coming in early, stubble turnips were sown, and produced good spring sheep keep—1833, mangel wurzel, without any manure—1834, wheat, good crop—1835, clover—1836, wheat, of fine quality, and estimated to produce five quarters per acre. It may naturally be supposed that any one reading this account would wish to know by what system land could be brought to give such produce. I will therefore mention it, but at the same time strongly recommend no one—of this county at least—to adopt it. It is that of stall-feeding oxen, which in nine years out of ten will be a losing concern, after making a good allowance for a superior quality of manure. To consume produce of one's own raising might sometimes answer, but to purchase the food for stall-feeding never can, except on the low-rented poor soils of Norfolk, and elsewhere.

PLOUGHING.—At the annual meetings of the Northamptonshire Farming and Grazing Society, it has always been considered a perfection to plough a narrow stitch, and to lay it on edge as much as possible, that the harrows may draw a sufficient quantity of mould over the seed corn. This is all right and proper for broad-cast sowing, but as I think drilling better than broad-cast, I like a wide furrow best, and laid as flat as possible. Deep ploughing, where there is any depth of soil, is beneficial for all crops ; but particularly for green ones, care being taken not to bury a fertile soil, and bring to the surface a sterile one. I have had attached to the right side of a plough-beam a curved piece of timber, to which are fastened, one on each side, by strong screws, to let them up and down, two strong, iron, duck's-foot shaped miners, which penetrate and loosen the sub-soil before the shell-board throws the surface soil over it, in which should there be any twitch, it can be got out, instead of burying it, as is by some erroneously supposed a method of getting rid of it. Some persons like to sow on stale furrows for all corn crops ; I like it on a clover ley for wheat, but on no other occasions. Scufflers are now made which will answer the purpose of stirring land that has been ploughed, and thus save the labour and expense of a ploughing. When land has become very full of twitch, it is a good plan to half-plough it—that is, turning over one furrow, and then another opposite to meet it ; this done in November will check the growth of the twitch during the winter. The land when ploughed in a contrary direction, early in the spring, will lie in heaps, and thus become quite dry, when the twitch may easily be got out, and a good turnip fallow made. A sandy soil is the most liable to be overrun with it, but it is one from which it is easily extirpated. It appears extraordinary, but many of the foulest and worst-managed farms I have ever seen, have been occupied by the owners themselves, and by those too who had been brought up farmers. The only way I could account for this was, that the farms must have had burthens on them ; that ready money being scarce, the owners had not the means of keeping the requisite number of horses, or expending so much as was necessary in labour by fifty pounds per annum, thereby losing annually full

one hundred pounds in value of produce, besides injuring their land from want of better cultivation. I have long been convinced that a steam-plough might be constructed to plough a dozen furrows at once. I hear one is likely soon to be brought forward, and I should think it would well answer on the large open arable farms in Hampshire, and other counties. There is still a great deal of ploughing with three horses at length that might as easily be done with two horses a-breast. Different soils require differently constructed ploughs; the Norfolk plough appears an unwieldy and certainly a most unsightly plough; still I believe it the best for ploughing Norfolk land. Skim coulter, to turn in dung or turf, are most useful.

SOWING.—Different descriptions of land require such different methods of sowing, and such different quantities of corn to be sown, that no one can lay down any general rule for this important part of farming. It is generally admitted that for most soils it is unwise to be saving in seed, and that the poorer the land the greater the quantity of seed is necessary.

DRILLING CORN is attended with the following advantages over broad-cast sowing. All the seed is put into the earth at an equal and proper depth, whereas, in broad-cast, some of it being too deep and some too shallow, it does not all come up or ripen at the same time, as it does when drilled. Drilled corn can be more easily, expeditiously, and less expensively hoed than broad-cast. Seed corn on poor sandy soils should be drilled in so thick that each grain should throw up but one stem. If three-fourths of the grains of $3\frac{1}{2}$ bushels of barley thus sown, produce one ear with twenty grains in it, this is a produce of fifteen times the quantity sown, and will amount to six quarters and a half per acre. I invented and have long used a hoe, drawn by one boy and wheeled by another, that hoes corn well and expeditiously. Clover does best with drilled corn; it gets more air, and is not so likely to be killed by layed corn.

RIBBING, which is broad-cast sowing after furrows had

been formed by a presser for the seed to fall into. The solidity thus given to a clover ley on a light soil must be good ; still, however, I do not think ribbing so good as drilling.

DIBBLING is much approved of in many parts of the kingdom for wheat. I have tried it, but did not like it well enough to continue the practice. There is a great saving of seed, but there is an increase of expense, besides which, should the summer prove hot and dry, the sun so penetrates to the roots on our light soils, as to dry them up. Besides which I think the wire-worm is more likely to injure dibbled than drilled corn. It is good for beans ; it lets in the sun to bring all the blossom into perfection, and on strong bean land it does not dry up the roots.

PARING AND BURNING.—It is the general practice to combine them, which I think in many cases is wrong. In the cultivation of fens or heath, it is perhaps indispensable ; but in the cultivation of other land, that is not a strong clay, I think the parings should not be burnt, but laid in large heaps, and decomposed by lime, for a top dressing to put on the land when it wants it more than it can do for the first crop. Ashes do little or no good, excepting on stiff clay ; they create separation in the soil, make it work better, and enable the roots of the grain to penetrate more easily in it for nourishment.

SUMMER FALLOWING. Never having occupied any quantity of land that required it, I do not profess to know much about it. By some it is thought in all cases unnecessary and that a crop of vetches eat off by sheep will do as well ; I am of opinion that it is quite impossible to get some land clean without it. But I cannot agree with those who say that exposing the land to the sun and air so renovates it as to give it an increased power of production ; I, on the contrary, think the land weakened by such exposure ; but if it is kept from producing any crop for the whole year, and freed from twitch and weeds (of which should there be any great quantities, they will exhaust as much as a crop of corn), it will of course gather power

for producing grain another year. If, by way of experiment, a small piece of a field intended for summer fallowing were made quite clean in the spring, and an old barn door were laid on it to shade it from the sun all the summer, it would be found that the land so shaded would produce the next year more crop than the other part of the field, which had all summer been exposed to the sun's rays.

MANGEL WURZEL.—Having for many years been a grower of this root, I have often been asked which I preferred—this, or Swedish turnips. My answer has invariably been that for some purposes I prefer one, and for some the other. For stall-feeding till the spring, turnips are the best; but at that season, the turnips having lost a great portion of their nutritive quality, and the mangel wurzel from keeping having lost much of its watery particles, and thus improved, I then prefer the latter. It ought in fact to be kept till the turnips are all consumed. Had our winters of late years been as severe as they used to be in former times, mangel wurzel would have been thought more valuable than it hitherto has been. It must in any winter be worth at least seven shillings per ton—to be consumed on the farm—a crop of 30 tons, ten guineas per acre. Admitting expenses to be in most seasons (not in all), 30s. an acre more than Swedish turnips, it leaves nine pounds an acre, which is more than Swedish turnips are scarcely ever valued at. Should it be unquestionably proved (which I think it might), that a given weight of mangel wurzel will produce as great or a greater weight in the animal which consumes it, than the like will of Swedish turnips, the cultivation of it would be of course much increased. All herbaceous animals are fond of it; and game, and poultry. Those who have not a good depth of mould, free from couch, and a good supply of manure, had better not attempt the cultivation of mangel wurzel. If the land can be made tolerably fine, it will grow on stronger soils than is generally supposed it will, and where Swedish turnips will not grow to be of any worth. Turnips will keep stacked and buried all winter, but they do not improve by keeping as the mangel wurzel does; it is not the general custom to

take turnips up, as it is for the mangel wurzel, which, in case of a long and severe winter, supplies the demand for succulent food in the highest perfection for beasts—and for lambing ewes in the spring, filling them with more milk than turnips will, besides which, when sheep have been used to it, they like it better than any other root, or cabbages. It should be dibbled or drilled, less than an inch deep, on Northumberland ridges, twenty-seven inches asunder, the latter end of April or first week in May; and left when hoed, each plant about fourteen inches apart. Any deficiency in the crop to be made up by plants (not too small), put in when the land is wet, with the roots not doubled up, and an inch or more of the top part of the root left out of the ground; if the whole of the root is put in (as planters are apt to do), a good root will not be obtained, shoots will come from the top, and on taking the root up in the autumn, it will be found with a great deal of top, and a poor root, full of fibres.* My practice has been to soak the seed till it sprouts a little, not too much, for should the weather prove to be dry, there is danger of the shoots dying, and the plants being lost. Drilling takes treble the quantity of seed that dibbling does, but as drilling is the surest way of getting a crop, it is prudent not to let the extra quantity of seed be a consideration. Dibbling in single seeds, $3\frac{1}{2}$ inches apart, and thinning the plants when the size of a radish, which are then useful for pigs, is a good plan. After trying many various ways of cultivating it, I have this season (May 11th, 1836), dibbled the seed in holes made by a boy, pressing down by a handle about four feet long, on the centre of the ridge, a piece of wood, 16 inches long, and about four broad, with three pegs

* I have the ridges for mangel wurzel set up as high as possible, that full two-thirds of the root, when at its full growth, should, after being pulled down with the hoe, be out of the ground. I have a very light wooden roller run over the ridge to flatten the tops of them a little before putting in the seed. I do not want the ridges so high for turnips; drought has more effect on them. In hoeing mangel wurzel, or turnips, the ridges may be much pulled down, but afterwards set up with a double mould-board horse hoe, which will not—as it ought not—push the mould up again to the roots, but will well cover the dung, and thus keep it moist; the fine fibrous roots, being thus cut off in hoeing, will shoot again, and gain nourishment from fresh earth.

in it, seven inches asunder, to make three holes, about an inch deep ; one seed put in each hole (two, if the seed does not appear very good) ; the top of the ridge being made fine with a small rake, the plant which is at first very feeble, is thus enabled soon to get its head above ground. All under-ground grubs will, from its sweetness, attack it from the time the seed vegetates, till the plant becomes the size of a radish ; and many plants are frequently eaten off, just at the top of the ground, when they have become as thick as a carrot. I never before failed in my mangel wurzel crop as I have failed this year. That part of it sown about the middle of April will be a fair crop, but the rest sown in May only came up after the rain on the 22d June, and then a great part of it was eaten off in the ground by a grub, or sort of worm, which is found coiled up, but when straightened out is of this length and thickness =====

By letting the plants that have not been eaten stand at half the usual distance, and filling up the failing ridges with transplanted mangel, and turnip seed, I do not despair of having a fair crop of useful green food. It is the usual custom to manure at the time of sowing ; and so it is likely to continue, because the land is not till then in proper order to have the manure applied to it ; but mangel wurzel will do the best when the manure is incorporated with the soil ; the ridges then can be better formed, the mould does not so run down from them ; besides which they then lie on a loosened subsoil, instead of one trodden hard by the horses. The best crop I ever had was after a carted-off crop of Swedish turnips, without any other manure than was given to the turnips. I, and all others who saw the crop, thought it as fine a one as could possibly have been seen ; still, however, it did not come near the reported weight of some crops, being *only* fifty tons per acre. The marble kind will produce the greatest weight, but I cultivate the blood-red, which is more like beet ; it has a less proportion of water in it, and therefore must possess more fattening qualities. The yellow, from an experiment made for me by the celebrated Andrew Knight, Esq. is the most nutritious of all. Mr. Knight found it to possess five and twenty per cent. more saccharine and nutritious matter in it than the marble kind. Any person putting a bit of it in his mouth

will find it, although sweet, of very acrid flavor. But as it will not grow to a large size, and as many of the plants are apt to run all to top, I do not continue to cultivate it. All the side leaves of a crop may be stripped off, after August, without doing any injury, if wanted for sheep or pigs. Roots are often exhibited of the marble kind as very fine ones, but which in my opinion are not ; they are large, but generally a very great part of the weight of the root consists of a neck, which is hard, and has little, if any, nourishment in it. My blood-red kind, which does not produce the quantity of leaves as other sorts do, and therefore may stand nearer together, is nearly as good at the very top of the root as it is at the bottom. Information has lately run the round of the newspapers, that steamed mangel wurzel leaves are good for sheep. Ever since I have been a grower of mangel wurzel my sheep have eaten the leaves with such great avidity, without any cookery, that I have found it necessary on their first having them, to give them a limited quantity, for the leaves being of a very succulent nature, they are apt at first to make them scour. It is best to give them the leaves in a field where there is good fair keep, for as sheep like variety in their food, they will not then eat too many. Steamed potatoes are certainly much better than raw ones for feeding cattle or pigs, but useful as a steam apparatus at times may be, the practice of steaming may be carried too far. A late breeder, and amateur farmer of this county, the year before he died, had his hay so spoiled by continual rains (flooded I believe), that his cattle would not eat it till it had been steamed ; in this manner the unwholesome food for all cattle, but particularly for the young, was consumed ; the consequences were that the purchasers of the cattle (of whom I was one), found on their being slaughtered, that they had ulcers in their insides ; I have no doubt this was the consequence of their having eaten the bad steamed hay. My practice in getting up mangel wurzel is thus :—two men or boys take a row each ; by placing their hands on the crown of each root, and at once pulling down, they strip off every leaf, which they throw into the furrow between them : two more go on each side of them, and throw the leaves into the same furrow. The roots of the two rows are pulled up by hand, to prevent

dirt going amongst the leaves ; all the other rows are got up with the double mould-board plough, with the shell-board off, and thrown into rows convenient to be carted off. If the land is not wanted for wheat, the leaves will keep, as they have been laid in rows, a long time without rotting ; if it is wanted, they will keep by being put between a hedge and a row of hurdles set up about a yard from a hedge. The leaves may be most usefully disposed of by being thrown on land, for sheep, immediately after it has been sown with wheat ; the solidity of the land, from the treading of the sheep, is good for the crop. Or thrown on the wheat when it has been up some time, and got firm hold in the land : but not when it first comes up, for then the treading of the sheep will bring the roots above ground. I think if a stack was made of layers of good sweet straw and layers of leaves, they would keep well so, and that the whole stack would be most useful winter fodder for beasts in the fold-yard. I mean therefore this autumn to try this method. After having finished sowing mangel wurzel this year (1836), I find I could still improve the preparation of the ridges by again loosening the subsoil by a grubber drawn by one horse after the manure has been spread in each furrow, the bottoms of which have been hardened by the treading of the horses and the cart wheels. It is not safe, on account of the risk of a sharp frost, to let the roots remain longer in the earth than the latter end of October. For fear of a severe winter they are better pitted than housed, for if once frozen they are injured in their quality, and very likely to rot in the pit or stack they are kept in. My pits are dug two or three feet deep, and about twelve wide. In these the roots are stacked and ridged, up to the height of about ten or twelve feet from the surface of the earth ; faggots should be set upright about every two yards in the centre of the pit, and continued up to the roof of it, all along which faggots should lie. By this contrivance all the heat or effervescence which may arise from the roots will be carried off, and rotting be prevented. The stack then must be covered with dry straw or haulm ; then covered with mould, allowing a little time for heat to escape before completely covering the top for the winter store. It will thus keep in perfection till May, when it is often as

much wanted as at any other time, or it will keep till June. It is proper for milking cows, but must not be given in too large quantities ; it does not give any unpleasant taste to the butter, as turnips do ; this, however may be prevented by the following management. The week previous to giving cows turnips, when churning save a couple or three quarts of buttermilk. The earthen pot in which the cream is usually collected, should be scalded, dried, and put before the fire to make it quite hot ; when hot put the buttermilk into it in order to make it sour ; the morning and evening cream to be put to it, and then kept till churning. A small quantity of saltpetre is put into the cream. The same quantity of buttermilk to be saved every time after churning, and the same process repeated. The turnips to be well cleaned, tops and roots cut off, and no decayed turnips to be used on any account. The introduction of this valuable root has been the means of wonderfully increasing the quantity of animal food produced in this country, and of keeping the price of wheat more equal throughout the year, which is proved by its unusually high price at this time (April, 1836), after nearly a failure of the last year's crop of Swedes.

SWEDISH TURNIPS.—There are three most essential requisites to obtain a good crop. First, the land must be congenial to their growth—clean, full of mould, and not very clotty. Secondly, a proper quantity of good manure, well covered in the land, and not exposed to the atmosphere so as to lose its nutritious qualities. Thirdly, seed raised from a sort proved to be good, drilled at the proper depth and distance, and at the proper season. With these indispensable requisites, with favorable weather, and, if the plants are not injured by the fly, and well hoed (twice or thrice, if necessary), a good crop of Swedish turnips (which is of greater value than it is generally supposed), is almost sure of being obtained ; but if there is a deficiency of any

The Scarisbric, which may be sown till about the 20th July, is a useful hardy turnip, between a Swede and Norfolk. If sown as early they come to their full growth before Swedes, and therefore answer for early carting off for stall-feeding.

of these requisites, it will be advisable to sow common turnips, and if there should be a deficiency of most of them, not to sow any ; for half a crop of turnips, with a full crop of weeds, puts the land into a bad state, and by expenses takes money out of the farmer's pocket for as wasteful a purpose as if he ploughed his cash into the land. It is unnecessary, and in my opinion injudicious, to consume on the land by sheep the whole of a full crop of Swedish turnips : it is making most land too rich for a good crop of barley ; very heavy crops always produce corn of inferior quality ; and generally speaking, in all descriptions of grain, when the quality is inferior, the quantity seldom turns out so much as expected. The consequence arising from a layered crop of barley is generally a half, or perhaps a quarter of a crop of clover ; and nothing can be worse, for the land will be covered ; if crops do not come weeds will, and thus injury is sustained in future crops. If half of a good crop of Swedes is consumed on the land, it is quite as much as it requires, the remaining half may be carted off to improve the quality of the manure in the yards, or to be consumed by sheep on other parts of the farm that may want enriching. Swedes wanted for stall feeding before Christmas should be sown the latter end of May ; but for that purpose only, the tops being likely to mildew in September, and the bottoms to rot in the spring. For sheep feed they may be sown as late as Midsummer ; common turnips from Midsummer to the middle of July. The greatest weight of Swedes is to be got drilled on ridges, 27 inches asunder, and the plants left twelve or fourteen inches apart. But drilled on a flat surface, in rows fourteen inches asunder, (care being taken that the manure is well covered,) answers as well for spring sheep keep as on ridges, the turnips not being so liable to be injured as Swedes on ridges sometimes are, during a winter with a repetition of frosts and thaws. It is best to form the ridges, and sow the seed, when the land is moist, the plant then coming up earlier and stronger, and of course sooner getting out of the power of the fly. It is much better to have moist mould thrown on the dung than dry. I do not like however to have the ridges formed when the land is very wet, for then they are apt to become so hard and crusty at the top, that

the seed plant (particularly mangel wurzel), cannot work its way out of the ground. Most Swedish turnips run too much to top, and produce many worthless fangs at the root. By getting, a few years ago, seed from Sweden, I have got a kind that produces a small top, with a tap root only; and having widely circulated my seed, the Thorpeland Swedes are well known in many distant counties. Each year I sow a small quantity of any sort well spoken of, but have not yet met with any I like so well as my own; the tops of which coming up weaker, they do not seem at first to promise so well for a crop as the coarser kind, and besides which the fly has more power on them. The fly is not one-tenth part so troublesome in some parts of England as it is in others. I am informed that in the north they are not much troubled with it; and from personal observation I know they are not on the coast of Norfolk and Suffolk; the cold blasts from the Great Northern Ocean do not suit them. I am inclined to believe that the sea fogs, so common on those coasts, are a benefit to the turnips grown there. There are few persons take the trouble of being so particular as I am in raising Swedish turnip seed. I superintend the selection, and see that not one turnip is planted that has run out of shape. And to prevent any inoculation by bees when they are in flower, I will not suffer any thing of the turnip or cabbage tribe to run to seed in my kitchen garden, although it is 500 yards from where my seed is growing. When it is raised near a village, there is no security against inoculation. My ridged crop of Swedish turnips is this year unusually small, but I think I may without presumption say, I believe, that there is not to be seen at this time (August 31), a finer or cleaner crop. To show the difference between the crops, I had some drilled on a flat surface, and as I well knew, the ridges will certainly produce much the greatest weight per acre. By having nearly twice as many turnips on the flat as on the ridges, it might be supposed that a greater weight might be produced. I have tried the two ways, both sown at the same time, and found the ridged turnips so much larger, that they produced the greatest weight per acre. A Swedish turnip is doubled in weight by a small increase

of its girth.* I have often been somewhat incredulous as to some of the reported weights per acre of Swedish turnips; for having been for some years past in a sweepstakes with Lord Spencer, I consider, from the weights we have produced, five and twenty tons per acre a good crop for regular tillage land that has, the previous year, borne a crop of white grain. Around Manchester, where they can obtain such immense quantities of good manure, and have, during the summer, three times the quantity of rain that we have in this county, they can produce a greater weight per acre of Swedish turnips than we can; for turnips cannot have too much rain. I recommend that land intended for turnips (but think it not so necessary for corn), should be ploughed up at the beginning of winter; and, if it is free from couch, and intended for Swedes, a small quantity of dung ploughed in (not too deeply), will produce good effects, by causing the infant plant to grow stronger and quicker, and therefore sooner free from the attacks of the fly.

After numberless trials to prevent the ravages of the turnip fly, the only way which I found at all successful is, to collect all the weeds I can on the farm, and lay them in heaps all round the field sown with turnips; on the plants coming up, and showing the least appearance of being attacked by the fly, the heaps to windward are set on fire, brimstone is put in the fire, and thus the strong smoke, which is very offensive to the insect, is wafted over the crop. If this is continued till the turnips get into rough leaf, they will be safe; but if before this the process is stopped for five or six hours together, in a fly working day, the crop most likely will be lost; therefore I have not scrupled on a Sunday to have the fires lighted before the morning, and also before the afternoon service. When, some years ago,

* With Northumberland ridges a certain degree of fallowing is carried on during the growth of the turnips. As to a broad-cast crop of Swedes, I think that quite out of the question with a good system of farming. Three pounds of seed per acre is my usual quantity. Swede turnips will keep stacked in the field very well, in not too large heaps; and I think it a good plan to have a reserve of unfrozen turnips there, for sheep, in a hard frost. They will keep through a long frost by being placed in rows close to each other, with the roots cut off, the tops thus forming a pretty secure covering.

I mentioned my smoking-fly preventative scheme, after dinner, at our Society's Annual Meeting, I got a little smoked myself; but having had, last year, a full crop of Swedes, which was a very rare sight, I have had the satisfaction this year (1836), to see my plan adopted on the farm of the Noble Patron of our Society, and on many other farms in the county. I think my smoking plan might be serviceable to protect hops from the insects which attack them. The fly commences, and ceases to commit its depredations, at such different times, in different seasons, that no one can with any degree of certainty fix the time for sowing, when the crop shall be least likely to be injured. The fly likes only the smooth seed leaf of the turnip, if that is eaten, the plant dies. When they cannot meet with seed-leaves, they will eat holes in the rough leaf, but they cannot thus destroy the plant. When corn crops are mowed, they will then prey on the young clover plants. No one has yet been able to prove where the fly is produced. Some assert that it comes out of the earth; others that it is bred in the seed. I made an experiment two years ago, which satisfied me and all those I showed it to, that it comes out of neither. When my turnips were sown, I covered a piece of land with a large square of thin gauze, which I so fastened down that no insect could creep under it. Under the gauze, the turnips were not touched by the fly; all round it, they were eaten and destroyed by it. Where the insect is generated, is not known: it flies in the air like other insects, and although it may appear strange to us, it has the power to discover that there is food for it as soon as the turnip leaf appears above ground. I have dwelt long on the cultivation of mangel wurzel and turnips; but I trust that the generality of my readers will so agree with me as to the great value of these crops as not to think me tedious.

COMMON TURNIPS are best drilled on a flat surface, fourteen inches asunder, and not before July, excepting for very early consumption, for very large white turnips soon become very pithy, and of little value. When wanted for early winter keep, the Globe and the Decanter, which grow to a great size, and much out of the ground, are the best.

There are many other sorts better for later keep. There is a green-rinded turnip which grows to a good size, and being very sweet, the sheep are particularly fond of it. There is a useful turnip, which from growing much under ground will well stand the severity of a long frost. And so will the Scotch, but these, sheep are not very fond of.

Every autumn, after an early harvest, I plough up all the stubbles I can, to sow stone turnips, and, in some seasons I have found them very valuable spring keep for ewes and lambs. Many years in June I have sown, after hoeing, about one pound per acre from my long box barrow machine, in my wheat crop, which has often produced me a crop, consisting of blades from the shed corn, and moderate-sized turnips, which I have often found most useful in bringing my lambs to eat turnips before they are penned on them for the winter, and this at an expense of about 9d. per acre.* A fair crop even of Swedes may be obtained by seed being well hoed in amongst dibbled beans that are not growing on very stubborn land. The turnips get more air in beans than in any other crops; and the beans being reaped, the turnip tops do not get mixed with them, as they would with mowed oats or barley, and thus delay the crop from getting into good order for carting. It is useless however to attempt any thing of this kind, if the land is not clean and in good heart. I wish also to say that in mentioning what I have done in this extra way of green crops, I do not mean to recommend it for general practice.

FINGERS AND TOES IN TURNIPS.—Conceiving that many of the readers of this little work may not know what is meant by this term, I think it necessary to give them some explanation. Some turnips, instead of forming round bulbs, with a tap root, throw out four or five collateral roots, something like fingers and toes, without any bulb having been formed. In some parts of Lincolnshire this extraordinary disease in the turnips, as it is there called, is very prevalent, and has hitherto baffled all endeavours to pre-

* All seeds sown in crops of corn should be sown when the blades are dry; if sown when wet, the chief part of the seeds will get amongst the roots of the corn, instead of where it should be, between the drills.

vent it by any mode of cultivation, or by the application of any kind of manure. Of two fields adjoining each other, the soils of which in all respects shall be similar, one shall always (excepting in a very rainy season), produce fingers and toes, while the other has never been known to have done so. A Lincolnshire friend, who is an excellent agriculturist, but who cannot prevent his land from producing these worthless turnips, is of opinion that the disease is bred in the roots, as the roots called fingers and toes are covered with little round knobs, in which, he says, no perforation appears on the outside, although a grub is in the middle of them. I am inclined to think that the grub deposits its egg in the very young state of these roots, and that in their growth, the egg gets covered over, as the bark of a plant will grow over and cover the root of a shoot which has been cut off. These knobs, each containing a maggot in the middle, are common in all turnip crops in a dry season. In the spring, when the maggot is about to come out, partridges and birds of many kinds peck the knobs off to get at their contents. As it appears that none of the intelligent persons residing where these fingers and toes are common, can tell what causes them, it may perhaps be thought presumption in me to give an opinion on the subject, but I am inclined to think that these collateral roots shoot out in consequence of the tap root of the turnip in its infant state having been eaten off by some grub; which grub I should try to kill by ploughing up the land in the autumn, and laying on, and well mixing with it, pounded rock salt, or refuse common salt, or unadulterated common salt, which in the end is the cheapest, at the rate of 30cwt. or two tons per acre; this would cause the land to be sterile for a time, but from the frequent stirrings which should be given to all land intended for common turnips, the sterility will have ceased before the seed is sown in July. My friend says he has not observed that these diseased turnips have the least effect on the corn crop. But if a good crop of turnips had been eaten on the land, instead of these, the crop of corn would surely have been greater.

CARROTS.—A very useful, but an uncertain and expen-

sive crop to raise. They are very good winter and spring food for cart horses, and also for milking cows ; giving the butter the same pure flavor as that which is produced in summer. Light soil, if deep, is most congenial for their growth ; they require the deepest ploughing, and when the cultivation is not on a large scale, I should recommend deep digging. But I feel confident, should I live another year, that I shall find that the plough with the grubbers I have described in the page on ploughing, will answer better than deep digging. They are best drilled, to lessen the difficulty of setting them out. The seed should be only slightly covered with mould, and rolled or trodden in. As they are not so liable to be injured by frost as mangel wurzel, they may safely be secured for the winter in an outhouse ; if buried in the manner of mangel wurzel, the pits must not be above three feet wide, for if great care is not taken, they will heat very much, and rot. Mine are kept in a pit sunk for the purpose, about six feet deep, under a corn hovel ; all effluvia arising from fermentation escaping, they do not rot, and when frost sets in, are easily secured from it. If they are sown in rows they will be safe in the ground all winter, by drawing with a hoe a little mould over the crown of the root. Some years ago, I got a crop of Altringham carrots, of extraordinary size, of which I was more proud than of any crop I ever grew ; but, from injudiciously burying them, much to my mortification, every one of them rotted. The best preventive against great fermentation and rotting when stored, is, to let them previously be laid in a heap to undergo what is commonly called a sweat. I did not weigh my crop last year, but I believe it exceeded the weight of my crop of mangel wurzel, which was very fine. Carrots should be sown without manure as soon as the land can be got in good order for them, but not later than the middle of March. The Altringham are the best sort for cattle.

POTATOES. — A useful crop for consumption in the house and on the farm ; but beyond that, being a very exhausting crop, I cannot think that a system of cultivating any great quantity can be a good one, except in the vicinity of large towns, where there is a sure sale for them, and

manure in plenty is to be had. Take one year with another, the best time for planting in a field is the first week in May. There are various opinions as to the sets. Most planters cut pieces with two or three eyes, or shoots : many prefer small whole potatoes. Some make a point of never planting the crown of the potatoe. If the sets are to be ploughed in, the best way is to lay them, the proper distance apart, on the edge of the top of every other furrow, for the plough to turn them in. If they are put at the bottom, they are trodden on, and many displaced. I believe the produce may be increased by taking off the flower. It is a common practice to put the sets into holes made with a setting stick, pointed with iron ; the set seldom getting to the bottom of the hole, if dry weather succeeds, the set, having a dry cavity underneath it, becomes dry rotten, and sends forth no shoot. This is a common case this year (1835). It is best to lay the sets on the dung, and cover them over with a spade. Any person occupying ploughed land that has been many years in grass, and was found to produce too luxuriant a corn crop, and, therefore, as some would say, wanted taming, I know of nothing that would do it so effectually as a crop of potatoes. Beasts in the stall will, with hay, get fat with them, but they should not have above one-third of the quantity they may have of turnips ; if they have more, being of a very heating nature, the beasts will appear red all over their bodies, lose their hair, and become greasy heeled. Potatoes should be cut, and the small ones likely to go though the machine uncut, should be thrown out, as many a good beast has been choked by a small round potato. A probang should always be near at hand, to be ready when either a small turnip or potato sticks in the throat. The best way of feeding cattle with potatoes is to steam them, and mix them with cut hay, and a little barley or bean flour. I have found potatoes to answer very well on the hanging of hills, on a farm where turnips will not do well.

CATTLE CABBAGES.—A great weight per acre of this vegetable may be obtained, but they are not good for stall-feeding beasts. They are good for fattening sheep, but it is often necessary that they should be eaten early in

the winter, when there is plenty of grass. The spring plants are in the general way the most useful, and are very good for lambing ewes. I never grew red cabbages; I have seen fine crops of them, and heard them commended as being more hardy than any other cabbage. Enough has been said about the wonderful Cæsarean Cabbage; the greatest wonder belonging to the subject is, that people should be so taken in. I had a plant given me in the spring of 1828. I did not endeavour to save any seed from it. It grew seven or eight feet high, and produced many small cabbages, but one drum-head cabbage was three times the worth of all of them.

KOHL RABI, or TURNIP CABBAGE.—This I grew thirty years ago; found it would stand the hardest frost, being as hard as a stone, and not worth cultivating.

BARLEY.—The most frequent growth of it is after turnips. The land cannot be made too fine for it, or for the clover which is so generally sown with it, and which does best with drilled corn. Barley may remain uncut longer after it is ripe, than any other grain; still, if left too long, many heads will break off, and be left in the field. The small quantity of Chevalier I sowed last year turning out to be highly productive, and of a fine, plump grain, I have sown no other kind this year, and finer crops of barley than I now have are not often seen. From the thinness of its skin, it is thought that it would be more likely to sprout in a wet harvest than the common sort. It probably may—but it is this thinness of skin and tendency to vegetate that induce the maltsters to give a higher price for it than for any other barley. This barley, which is so much approved of, was introduced by Charles Chevalier, Esq. of Aspell Hall, near Debenham, Suffolk, from a few grains given him, about eleven or twelve years ago, by a labourer living in one of his cottages, who selected those grains out of a small quantity grown in his garden for food for his fowls. A new species of grain cannot be obtained, but a valuable new variety may soon be produced by careful cultivation. And from the produce of one uncommon and fine ear, or from one root of any kind, a sufficient quantity of seed to sow

manure in plenty is to be had. Take one year with another, the best time for planting in a field is the first week in May. There are various opinions as to the sets. Most planters cut pieces with two or three eyes, or shoots : many prefer small whole potatoes. Some make a point of never planting the crown of the potatoe. If the sets are to be ploughed in, the best way is to lay them, the proper distance apart, on the edge of the top of every other furrow, for the plough to turn them in. If they are put at the bottom, they are trodden on, and many displaced. I believe the produce may be increased by taking off the flower. It is a common practice to put the sets into holes made with a setting stick, pointed with iron ; the set seldom getting to the bottom of the hole, if dry weather succeeds, the set, having a dry cavity underneath it, becomes dry rotten, and sends forth no shoot. This is a common case this year (1835). It is best to lay the sets on the dung, and cover them over with a spade. Any person occupying ploughed land that has been many years in grass, and was found to produce too luxuriant a corn crop, and, therefore, as some would say, wanted taming, I know of nothing that would do it so effectually as a crop of potatoes. Beasts in the stall will, with hay, get fat with them, but they should not have above one-third of the quantity they may have of turnips ; if they have more, being of a very heating nature, the beasts will appear red all over their bodies, lose their hair, and become greasy heeled. Potatoes should be cut, and the small ones likely to go though the machine uncut, should be thrown out, as many a good beast has been choked by a small round potato. A probang should always be near at hand, to be ready when either a small turnip or potato sticks in the throat. The best way of feeding cattle with potatoes is to steam them, and mix them with cut hay, and a little barley or bean flour. I have found potatoes to answer very well on the hanging of hills, on a farm where turnips will not do well.

CATTLE CABBAGES.—A great weight per acre of this vegetable may be obtained, but they are not good for stall-feeding beasts. They are good for fattening sheep, but it is often necessary that they should be eaten early in

the winter, when there is plenty of grass. The spring plants are in the general way the most useful, and are very good for lambing ewes. I never grew red cabbages; I have seen fine crops of them, and heard them commended as being more hardy than any other cabbage. Enough has been said about the wonderful Cæsarean Cabbage; the greatest wonder belonging to the subject is, that people should be so taken in. I had a plant given me in the spring of 1828. I did not endeavour to save any seed from it. It grew seven or eight feet high, and produced many small cabbages, but one drum-head cabbage was three times the worth of all of them.

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on a farm, may, with care, soon be obtained. At our annual meetings, I have always, after dinner, exhibited specimens of my mangel wurzel and Swedish turnips, which go round the table. A few years ago, a person from another county liked the turnips so much that he put one in his pocket, from which he has raised seed enough for his own use, and to supply some of his neighbours.

Most farmers, thirty years ago, made a point of sowing seed corn that had grown on a soil different from theirs. At that time, corn not being well winnowed, the seeds of weeds were not got out; I thought therefore that the custom of changing the seed arose from its being well known that weeds natural to a clay soil, would not grow strong on a light soil, and *vice versa*. My barley having been always quite free from weeds, and good, I never changed it till I got the Chevalier. As I have lately seen a bolder barley than mine, grown on strong land, from barley had from me, I now think it a good plan to have a change of seed corn. Many farmers of this county grow the American barley. The winter barley has been tried here, but not liked.

OATS do not need the same good cultivation as barley, and will grow on all soils, but are known to be a much more exhausting crop than barley. If a full crop of oats stand till the whole is quite ripe, a great quantity of the very best of the corn will be shed on the land. The skinless oat is an extraordinary grain; I have this year got in the produce of eight bushels sown, but whether they will prove a useful grain, I cannot at present say. The few I grew last year, proved strong in the straw, and yielded well.

WHEAT is a chief dependence to pay rent, but should never be sown if the land is not in a fair state for it. The best preparatory crop is clover, the decayed roots of which furnish much good nourishment for the growing wheat. I have often sown wheat after mangel wurzel, and early carted-off Swedes, and have had as good crops as after clover. I have not done this of late years, because wheat has not fetched so good a price as barley.

Pressure by rolling, or folding, or both, after sowing on light land, does essential service; also, early sowing, and eating down close by sheep, and giving them on it the tops of mangel wurzel and Swede turnips. It may so happen that the crop escapes smut without any preparation of the seed to prevent it; but in these days, scarcely any one runs that risk, but makes use of some sort of steep—brine that will swim an egg, is a good and safe one—hot lime and water will do. Mildew, in my opinion, is caused by the plant being too luxuriant; the root absorbing from the earth more nourishment than can get through the straw to the ear; the straw therefore bursts, and the juice exudes, turns the straw black, and renders it so callous that it is incapable of conveying a proper supply of nourishment to the ear; this makes the grain thin and poor, and when much affected, it should be cut, although unripe. For these few years past, we have not been much troubled with it, but our good sandy loams, which produce luxuriant crops, more frequently suffer from it than the strong clays, or weaker and poorer soils, and I believe there is no preventive. It is said, and I believe it is a fact, that a barberry bush, growing near wheat, will cause mildew; this is strange, and may perhaps be thought not to accord with my ideas of the causes of mildew. Where a dunghill has laid in a field, the wheat growing very luxuriantly on that part, is often mildewed. There is a red wheat, with a white chaff, grown in this county, that will not, it is said, mildew. I have often grown it, and have some now; it has never mildewed with me, but when I have grown it I do not think it has been a mildewing year. Cutting wheat should begin before it is quite ripe, otherwise those who have any quantity to reap will let some of it remain so long uncut, as to lose, by its shedding, much of the finest of the grain. It ripens differently in different seasons; sometimes it dies at the root first; when it does so, it should be cut, although the straw should appear to be rather too green. Wheat reaped early in the morning, with a strong dew on it, should not be bound up in sheaves till the moisture is dried out. In the year 1832, there was found in the middle of a wheat field

of Mr. Jones, of the Griffin's Arms, Amersham, Bucks, thirteen fine ears, all from one root, growing a foot higher than the rest, each ear producing sixty grains, which, in three years, have produced fifty-six quarters, weighing, it was said, sixty-eight pounds per bushel. It is a fine, plump, white grain, and I think likely to prove valuable for some soils. I dibbled in seven bushels of it in October, one bushel and a half per acre; which has yielded 23 quarters.

The alteration of the bushel from Winchester to Imperial, is a loss to the farmer without being a benefit to the public. The farmers were asleep in not opposing the alteration.

PEAS are more adapted to poor than rich soils. In the four, or five-course husbandry, much land had become what is called clover-sick, by its frequent repetition in the course of cropping; to prevent which, peas, and another crop of white grain, have been added, to make it a six-course system. All pea crops require good management, and a great deal of hoeing, to keep them clean. I have seen more foul crops of peas than of any thing else, and the mischief accruing from such foulness will extend to succeeding crops. The maple is the best, but still hazardous, as all peas are, to get a good crop. The straw is useful fodder, when the crop is well housed. The Nimble Tailors were sown a good deal in this county a few years ago, but are now quite discarded, being found so bitter that no cattle much liked to eat them. Peas should be drilled, it is impossible to keep them any thing like clean, on good land, when sowed broadcast.

RYE.—When I began farming, most of the light sandy soils of this county were sown with it. Now, a crop is seldom seen, it being so little in demand; besides which, it is a very exhausting crop. A small quantity sown immediately after harvest, comes in most usefully, to cut green, very early in the spring, for cart horses. I sowed, last autumn, a few grains of foreign rye, that was much superior in quality to any English. But as rye is not wanted, it is perhaps not worth taking the trouble to try to get a quantity of it.

BEANS are an indispensable crop in strong clay soils, being an excellent preparatory for wheat, and will furnish the means of making a good quantity of manure. The best mode of cultivating them, is by dibbling in rows, fourteen inches asunder, and about six apart, in the rows: thus the crop can be kept quite clean, and that, and succeeding ones, benefited. I have several times sown the winter beans, but have not found them answer any good purpose. The Helegoland do not need being sown on a strong soil; with good cultivation they will yield a good produce. Millers are greater purchasers of beans (when the price is lower than wheat), than they want for their cart horses. Baker's bread has been particularly good, these last two years; wheat having been so low priced, substitutes for it have not been resorted to.

VETCHES grow the best on strong land, but being so useful for soiling cart horses, they are grown on most farms. Horses are bad grazers—they bite close, and take the best grass; their dung is of little or no use in the field, but is very serviceable in a littered yard. Horses working hard can, with vetches, fill themselves quickly, and have good time to rest; which they have not, when turned out in the evening to graze. Farm horses ought to be soiled in a littered yard, all through the summer, and autumn too, if possible. Winter vetches should be sown as soon as possible after harvest, for spring feed; and spring vetches should be sown in February, for summer and autumn feed; thus a great deal of good manure will be made, and the horses kept from injuring a pasture, by their close biting, where the grass is shortest, and from hurting the pasture by their galloping about. On good turnip land, well manured, and free from twitch, Swedish turnips may be sown after vetches, cut not later than Midsummer; after that time, common turnips: but if there should be twitch in the land, it should be cleaned, and left for wheat. Vetches, when in pod, and made into hay, in fine dry weather, are very heartening food for cart horses, but they must lay in the field so long after they are cut, that it is not often that they are carted in a good state, and if not, they are of little worth. Care must be taken to ascertain

CINQUEFOIL—on rocky land, a most useful plant, either to cut as green food, or for hay, which, if well gotten, is thought to be of more value for draught horses than the best meadow hay. Although its produce is great, as it obtains its chief nourishment from the sub-stratum, it is not thought to be an exhausting crop. The roots will penetrate to a great depth in a rock, but if they come into contact with clay, the plant no longer flourishes. On many soils, where, with the four-course system, broad clover, from coming too frequently, has failed, cinquefoil has been successfully introduced, as a change.

TREFOIL (*Trifolium officinale*), is a useful plant to thicken the bottom of a clover crop, but from some cause or other, is not so much sown as formerly.

HARVEST.—My plan, for many years, of getting it in, has been to give so much per acre for the whole—that is to say, for cutting, carting, stacking, and thatching ; I paying the boy who drives my team, and allowing each man three pints of ale a-day, and an unrestricted quantity of small beer. My crop generally has been about one-third part wheat, the rest barley ; and my price per acre, 11s. Those who get in their harvest in this way, have only to see that the men, in their anxiety to get through their job in as little time as possible, do not tie up the wheat into sheaves when damp, or cart any corn that is not dry. In many counties, women and boys reap a great portion of the wheat, which they seldom could be able to do in this county, from the bulk of straw. At Holkham, the wheat being short in the straw, is all mowed with a cradle scythe ; youths, women, and boys, immediately following the mowers, binding it up (assisted by a horse-rake), into sheaves, which, as the straw is free from weeds, if the weather is particularly fine, they will carry without setting the sheaves up in the usual manner, in shocks. I was at Holkham, about eight days, in the year 1831, at the time the wheat was harvesting, and a most animating sight it was. I counted above a hundred men, women, and boys, employed in one large field. In this way, 345 acres of

wheat were cut, carted, and stacked in six days ; this was getting on with wheat harvest more expeditiously, perhaps, than is in the power of any other person in the kingdom. I saw, at the same time, 450 acres of turnips, of different sorts, and mangel wurzel, in which Mr. Coke challenged me to find a single weed, excepting some that might have just sprung up out of the ground. I could not see one weed that was three or four inches long ; this was such clean farming, on a large scale, as probably could not be seen in any part of the world.

THRASHING.—I know of no instrument now in use for any purpose whatever, in which there has been (as in the flail), no alteration in the make of it, for one hundred, or more years. Thrashing by the flail is a very tedious operation, but living in a populous parish, where there has ever been a great want of employment for the labourers, I have never made use of a machine, excepting at those times when my men had rather do any thing else than thrash with the flail. An ingenious mechanic of a village in my neighbourhood, has invented a machine of very simple construction, with which four men, two to turn and two to feed it, will thrash, with ease, six quarters of wheat a-day. As it will find employment in the barn for my men, in bad weather, I have bespoken one, and fancy I shall like it much. Those who sell straw will probably think it breaks it too much.

MANURE is the chief sinew for carrying on good farming. Sir Humphrey Davy, and other scientific persons, have said that the quality of manure is much injured by the common practice of throwing it up into dunghills, and thus creating so strong a fermentation as to cause the gases, which are the nutritive parts of it, to escape. It may be so ; still, I think farm-yard manure, in which there are sure to be the seeds of weeds, ought to undergo a fermentation to prevent their growth. Manure made from wheat-straw by stall-feeding beasts, I do not object to being immediately put on the land ; but not that made at the barn-door, in which there are sure to be quantities of the seeds of weeds. All refuse that has vegetable matter in it

may, with manure or lime, be turned into an excellent top-dressing for grass land. To lay on ploughed land, it should be burnt, but slowly, or very few ashes will be obtained. Ashes, incorporated with a strong soil, do much good ; they create separation, and thus make it work better, and enable the fibrous roots to search more into the soil, to gain nourishment. Lime has the same effect, but I conceive lime to be a stimulant only, and not a manure. Lime gives solidity to light land, the means of retaining moisture, and in some degree prevents the rays of the sun from penetrating so deep into the soil, and drying up the roots. Lime also encourages the growth of clover; but it does not do the good that is equal to the expense, when applied to land that has, for a length of time, had it periodically laid on. It is the common practice in this county to lime and dung the land for turnips, nearly at the same time, just before sowing. I think, to put on materials that must cause such different effects, cannot be quite right, and therefore I think it would be better not to put on the lime till the next spring, before sowing barley and seeds. I have heard of lime being laid on a stubble, or clover ley, and when slaked, ploughed in ; thus depositing it at the bottom of a furrow, where it can do but little, if any, good ; and it naturally will get lower. It should be laid on the land after it is ploughed, and, by harrowing, well incorporated with the soil. Very little benefit is derived from laying on a small quantity of lime ; it requires twenty or five and twenty quarters per acre, to do a very essential good. Marl is a mine of manure for those who are so fortunate as to have it as a sub-soil, but the desire of possessing it is lessened because it generally lies under an inferior surface soil ; this applies more decidedly to chalk. If land is free from twitch and other noxious weeds, there is no necessity for a great quantity of manure to produce a good crop of wheat. If twitch has got possession of the land, it will impoverish more than a crop of grain. In most arable fields, or closes, there are different kinds of soil ; and thus some parts want more manure than others. In laying manure on, this ought to be attended to ; in hollow parts of a field, there is sure to be crop enough, without manure, from the drainage from the higher parts.

By not attending to this, I have seen some parts of a field with a very light crop, and other parts so heavy as to be rotting on the ground. The richness of a farm may be estimated by the quantity of good vegetable crops growing on it. The land which produces these has that within it which must afterwards produce good crops of corn. Manure ought to be ploughed in as soon as possible after having been carted on the land. I have seen it laid so long, and thus so exposed to the sun and air, as to convince me that the greater part of the nutritious qualities had evaporated, and that the next crop grown would prove it. Manure dropped by animals (sheep excepted), on pasture land, does very little good at any other time than winter; the effluvia arising from it attracts innumerable quantities of small beetles, that consume all the nutritive qualities in it. If sheep were confined in a littered fold every night, much valuable manure might be produced; but folding in that way is objectionable, since it is likely to produce a complaint the most troublesome and difficult to cure—foot-rot. It is a common practice, in Norfolk, to make what they call a mixen. The manure is placed between two layers of mould, and is not turned over and exposed to the air more than a fortnight before it is required for use, so that when applied to the land it has undergone only a slight fermentation. Much greater quantities of good mould might be collected from the road-sides than is commonly taken. Some book farmers recommend, in some cases, putting on fifty loads of compost manure per acre. It is much more easy to recommend than it is to achieve that which is recommended. Six hundred load for twelve acres, which is not a large field, is not easily got together.

STRAW YARDS, so called in this and the adjoining counties, but in most others Fold Yards, ought to yield good rich manure, and not that poor weak stuff which is made from beasts which eat nothing but straw. If beasts in the straw-yard have turnips given to them, they will eat straw with greater avidity, the quantity of dung will be much increased, and the quality greatly improved, and the beasts in Spring be half beef, instead, as with straw only, as poor as crows in a hard winter. Swedish turnips can be grown on

stronger land than was formerly supposed, but as such land will not bear the treading of sheep to eat them off, the turnips cannot be applied to a better purpose to enrich the farm, than when they are given, with straw, to beasts in the fold yards. Beasts cannot fail to do well when feeding on two kinds of food which separately will have such opposite effects on the stomach and bowels of animals, but when blended will keep their bodies in a proper state. It is a common practice in Norfolk to give oil cake with straw; this cannot possibly answer but with the Norfolk low rents. When it is considered how naturally poor the soil of the greater part of Norfolk is, the crops are surprisingly fine; but as they are obtained at very great expense, a low price of corn affects Norfolk farmers more perhaps than it does the farmers of any other county. I have seen many straw and fold yards so ill contrived as to let all the drainings from the dung run away and be lost.

SALT.—The great expectations of benefit from the use of salt in farming, have not been realized. It has not been found to fertilize as it was said to do. Its only use is to destroy grubs in land that has no crop on it, for it will kill every thing that is vegetable. I was surprised to observe it destroy some large trees whose roots, a great distance from their trunks, came in contact with only a small quantity of it. If in the putting together a rick of coarse hay the rick-maker had a sack of unadulterated common salt on the rick, and he sprinkled a little of it on each layer, it would make the hay more palatable to the animals that eat it. A large lump of rock salt, put in a trough that will keep the drippings from the grass, ought to be put in every pasture, it having been found to do good to all animals that take to licking it. I have seen part of a close of land, of what is called in this county hen-mouldy soil—that is light, and a sort of boggy soil—which year after year would bear scarcely any crop; salt was applied to it, and it has borne very well ever since. The earth, no doubt, was full of weed-roots and insects, and the salt killed both.

PIGS.—As many should be kept on every farm as conveniently can be, without giving them good, marketable corn; excepting when put up for fattening. These useful

animals gather up, in the farm yard and in the field, after harvest, nearly every scattered grain, so that scarcely one is lost. They increase the quantity, and improve the quality, of the dung in the farm yard. The value of no animals changes so rapidly as that of pigs. I advise every one who has some to sell, to inform himself how they are then selling in the market, before he fixes his price. A few years ago, a butcher who came to buy a couple of fat oxen of me, observing two store pigs in my farm-yard, asked if I would sell them, and what would be the price. These were two of the worst out of about half a score, that I had been selling to men out of the village, at seventeen and eighteen shillings each, which I was told was the utmost value of them. I therefore asked the butcher a guinea and a half; meaning for the two. He, mistaking me, immediately said, "that is too much; I will give you five-and-twenty a piece for them." I assured him that was not the price I had expected to get for them, but that I thought him a good customer, and he should have them. The butcher never complained of the price; he had no reason for so doing; the fact was, I had been selling pigs, without first informing myself of their then value. The chief part of the pigs bred in this county for sale, and general consumption, are the spotted Berkshire, the dairy-men liking them the best to make porkets of, having a fair quantity of lean with the fat. The Neapolitan pigs, which are black, without hair, make very nice pork, hams, and bacon, for consumption, in a gentleman's family. The young pigs look like large young rats, but when roasted are particularly delicate; to which I can bear testimony, often having received a present of one from E. Bouverie, Esq. of Delapre Abbey, near Northampton, who is famed for his breed of Neapolitans.

SHEEP are most assuredly a highly important and necessary stock, on all arable farms. They benefit the strong soils by summer folding; and the light soils by their treading and their dung, whilst consuming green crops. Excepting for fat lambs, none but Leicesters are bred in this county, and a great many of them, in my opinion, have been bred too fine; they are very handsome, and get very fat, but are too short, and too fat on their loins

and fore quarters, for the London market, which is our chief dependence for the sale of our mutton. They are now, however, getting them longer, with more lean meat, so as to make a good saddle of mutton ; and getting rid of thin necks, which generally denote delicate constitutions. My idea of a useful sheep is, that it should have a long, straight, and flat back, a good scrag, and head up, good fore quarters, and good inside thighs, to produce good legs of mutton, and with all these, a good fleece. Some flock-masters assert, that a great deal of the good breeding, in sheep, goes in at the mouth. This assertion I do not assent to ; at the same time I cannot but acknowledge that there may be some reasonable argument in it. Supposing, at the death of a farmer, who had five hundred good Leicester sheep, his flock was equally divided between his two sons ; one retaining the occupation of his father's farm, which was land of good quality—the other occupying a farm of double the number of acres, of an inferior soil, but sound, and wholesome land for sheep. Supposing they were equally good managers, and always kept an equal number of sheep ; that they annually hired tups, of equal value, of the same person ; the question is, whether at the end of twenty years, the flock on the poorer soil would be of equal value to the other, which had been kept on the better soil ? If not, then it must be admitted that some part of good breeding goes in at the mouth. The size of sheep and cattle of the different parts of the kingdom, has become, from time, to correspond with the quality of the soil they have been kept on : this is exemplified by those of Lincolnshire and North Wales. The great size, however, of the former, has not been produced entirely from rich soil, but of course from the owners of the sheep and cattle selecting those of largest size to breed from. The weight and fatness of a sheep, with a full fleece on, can only be ascertained by handling. Those who know little about this, will do well to observe what the butcher does who is about to purchase. First, he puts his fingers on the rump, to feel if the backbone is covered with meat ; then on the ribs, to feel if they are covered ; he then spans the loin, to ascertain its width ; he then handles the scrag and shoulder points ; then, by turning the sheep up, handling

the bosom, and observing if well filled up between the thighs, he concludes, in his mind, what is the weight of the sheep. Till within about five-and-thirty years, it was the custom in this and adjoining counties, to keep the wether sheep till they were about three years old. On the introduction of the Bakewell breed, they have been sent to market at about two-and-twenty months old; but within the last year or two, it has been found that by cutting Swedish turnips in the field for them, they may be made fat enough to go to market at fourteen months old. If this practice should become general, an immensely larger number of sheep will be bred, and in many cases this further advantage will be gained:—most fields have parts of them where the corn and turnips grow weaker than on others; these parts may be assisted by having turnips grown on the stronger part, consumed on the weaker. A moveable field turnip-washer will be requisite. It should consist of a trough, four feet long, three wide, and two deep, set on low wooden wheels; an open-staved cylinder washer, two feet in length and two in diameter, turned by an iron handle, and raised out of the water by a double lever, in which there are grooves for the cylinder to run down in, and on the door being opened, the washed turnips are deposited in a skip. The water to be changed daily, but about ten pails full will be wanted during the day, to supply the waste. One man and a boy will thus wash and cut turnips to feed two hundred sheep, without any waste. Lambhogs, or tegs as they are called in this county, fed thus, will be fit for the butcher as soon as shorn. If very poor young sheep are put to sliced Swedes, many are likely to die from plethora, brought on by the sudden change from poor to good feeding. Connoisseurs will say, such young meat is not so good-flavored. For eating in winter, when all meat should be well kept, it may not be; but for summer, when it must be eaten fresh, or be liable to taint, the youngest meat is the most tender and best. It must be admitted that the South-down mutton, from age, is the finest-flavored meat, without being too fat in the prime part, the back; but South-down mutton, fed in Northamptonshire, will not have the same fine flavor as that fed on the South Downs; the

animal there is kept in great exercise while procuring its food, and is much longer getting fat; thus its flesh becomes faster upon it—like a horse in good condition—and not so frothy as the flesh quickly put on. It is from this cause, in my opinion, that the Southdown mutton has acquired its celebrity for fine flavor. I am convinced we can in this county make a much greater weight of mutton per acre, with Leicesters, than with Southdowns; but for the purpose of folding, to manure large arable farms, there is no breed of sheep equal to the Downs. Leicesters are more indolent animals; they like a good bite to fill their bellies quickly, and lay down to rest. The Southdowns are more on the move, herd much together, and lay their dung where it is not wanted, under the hedges. Full thirty years ago, I gave my opinion in the *Farmer's Journal*, that for different soils, and different parts of the kingdom, there were two breeds of sheep that were decidedly superior to all others, the Southdowns and the Leicesters; and that opinion I now retain. Mutton is more easy to sell at a fair, remunerating price, than beef; it is the meat which people can feed on daily for the longest time without being tired; it is a meat best suited to all the middle classes of the community, and to most of the lower—and therefore being the food of the chief part of the population of the country, must ever be in good demand, although the peasantry of the kingdom, from being now generally accommodated with small quantities of land to raise potatoes, will consume much pig meat of their own feeding. Long have I regretted that in this country, which is capable of producing animal food in abundance for the whole population, that agricultural labourers—who, from being always in the air, need more of it than any other class of people—should so long have had the least. These are my feelings, and it is to be hoped they are quite in unison with those of all the people of England, whose wants have ever been amply supplied. When the situation of the Irish peasantry is considered, I trust that these feelings are more acute in those who derive income from that country, and spend it in this. Useful as sheep are for grazing, there should be store cattle kept with them; otherwise, all the fine bottom grasses of a pasture will go, and the

top and coarser grasses be left. It is dangerous in some pastures to stock so hard with sheep as to make them eat herbage which will disagree with them, and which they would reject, if not pressed by hunger. It is bad to be under stocked, but it is much worse to be over stocked, which may be the case, in a dry summer, with the best of manangement, on light soils. Daisies, in any quantity, are injurious to young sheep and lambs, often giving them the gurry, which is attended with fever and thirst, and if they can get at water, they will drink such quantities as to prove fatal to them. Sheep will (excepting in very hot weather), do very well without any water. If, at the time of lambing, it is necessary that the shepherd's hand should be introduced, it should first be rubbed over with some strong oil or spirit. From introducing into the ewe's inside a hand, sometimes almost as cold as a stone, many have been lost. Ticks and lice often so infest legs in winter and spring, and make them so uneasy, as to prevent their thriving; these vermin may be destroyed by opening the wool in two rows on each side, and putting in sheep ointment, of half the strength of that used to cure the scab; or dipping them, all but the head, for about a minute, in a poisonous solution,* which should afterwards be carefully thrown on ploughed land.

* *Receipt for dipping fifty Lambs.*—One ounce of arsenic to 5lbs. of soft soap, boiled in nine gallons of water, then mixed with about 15 gallons or more of cold water, to make it the proper strength, which is ascertained by dipping in a live sheep-tick, and afterwards putting it on the palm of the hand; if it lives about one minute, and then dies, it proves the mixture to be of a proper strength. The dipping trough should be, on the inside, 3ft. 6in. long at top, and 2ft. 9in. at bottom. Width at top, 1ft. 10in.; at bottom, 13in.; depth, 22½in. A lid to fall back, which is supported by two legs, high enough to keep it in a slanting position; on this the lamb is laid, after having been in the mixture, and rubbed for a minute; and as rails are fastened to the lid, all that runs, or that is squeezed from, the lamb's fleece, returns to the trough. It is scarcely necessary to observe, that the utmost caution must be taken to prevent any accident arising from the use of so large a quantity of so deadly a poison. I should think that any copper pot, or vessel, used on this occasion, would not be fit to hold afterwards any liquid, for the use of man or beast. An old pot kept to boil the arsenic in, the dipping trough, and a pail, would serve for the use of a whole parish, or for a great number of farms. The time of dipping the lambs should be when the ewes are shorn, and then most of the ticks in the flock will be destroyed.

WOOL.—All occupiers of land, excepting those who occupy poor arable clay land, have of late years been much assisted by the price of wool; the only part of their produce on which there has been but little expense incurred, to get it ready for sale. Wool fairs are now pretty generally established throughout the country; and although some of the wool-buyers do not much like them, they will continue to be kept up. Farmers could always know the value of all their other produce; but before the establishment of wool fairs they could not easily inform themselves of the market price of wool. Till very lately, I always supposed that a tod of wool was two stones, of 14lbs. to the stone. I find that in some places the tod is 32lbs. We therefore, in this county, have often been mistaken, from the newspaper reported prices of other places, of the actual value of wool per lb. It would be much better to have the tod 28lbs. throughout the kingdom. The buyers at our fair, July 2d, sought much after the half-bred, between the Downs and Leicesters, and were willing to give full five shillings a tod more for it, than for all Leicester. As the weight of such cross-bred wool is less than Leicester, five shillings a tod is very little more than one shilling a fleece. This alone cannot be sufficient inducement for the breeders of Leicester sheep to cross; but if Leicester mutton, from being in general too fat, is worth less per lb. in most markets than other mutton, of good quality, not so fat, this deserves the consideration of Leicester breeders. As all occupiers of land know the market their sheep will go to, and as they know best the quality of their land, and the purposes for which their sheep are kept, none are likely to know so well as themselves the breed that may best answer their purpose; which, for all land, in all situations, must be that breed which will, with wool and carcase together, produce the largest amount of value per acre. Mine is a Leicester flock, and as well bred and good as is necessary to stock my farm with. I am not a tup breeder and letter. I am not, however, quite satisfied with my flock. I do not like to hear my Smithfield salesman say he can make a penny a pound more of black-faced wethers, than he can of my white-faced ones. But if Leicester sheep consume, as the breeders of them say, a less quantity of food than the

Southdown, to come to the same weight, Leicester mutton can be afforded to be sold at a lower price than Southdown. Sometimes, I think I should like to buy in every year, Southdown ewes, and put them to a well-bred, light-woolled Leicester tup; to make all the ewe lambs fat for market, and keep the wethers for stores. As the Downs are good sucklers, I should have good fat lambs; but as, generally, in all animals, the resemblance to the male is greater than to the female, I doubt if I should have my wethers sufficiently black-faced to get this penny a-pound. I wish some cunning man would put me in the way of having, with the cross mentioned, all the ewe-lambs white-faced, and all the he-lambs black-faced.

DISEASES OF SHEEP.—The diseases of this most useful animal are little attended to; numbers die that might be saved by medicine, if shepherds knew what was proper to give them. Foot-rot is a most troublesome and difficult disease to cure. Put the sheep in a dry fold; clear the dirt from between their claws with an old tooth-brush; apply to the parts affected, with a wooden skewer or a feather, butter of antimony; and let the sheep remain an hour in the fold. Or, apply a paste, made of equal quantities of blue vitriol, gunpowder, and train oil. Scab: * the most effective remedy is the mercurial ointment—to be had, ready made, at all druggists; which is also good for sore heads, caused by the fly; or for maggots. Gurry: one small tea-spoonful of turpentine, and four table-spoonsful of salt and water—one dose is often sufficient. Or, Peruvian bark, ginger-root, and prepared chalk—one drachm—in warm gruel, with a table-spoonful of gin or brandy. If a severe case, a tea-spoonful of tincture of opium. If a sheep that is fat, or nearly so, appears to be off its food, for some days, from some internal complaint, the safest plan is to have it killed. Scouring of young lambs: ginger and rhubarb, one tea-

* *Mercurial Sheep Ointment.*—A quarter of a pound of quicksilver to 1lb. of hog's lard: these must be stirred till thoroughly mixed, without first killing the quicksilver, which is the common practice, and thus lessening the efficacy of the ointment; it will require great perseverance in the stirring.

spoonful, in warm gruel, with ten drops of laudanum. Fourteen tea-spoonful rhubarb, seven of ginger, and seven of laudanum, or tincture of opium, will dose a score of lambs, about three quarters of a year old. Many flocks of lambs having been kept very short of food during the late dry summer, numbers have died from eating the young succulent grass, which sprung up when the rain came. Ewes injured in lambing: apply into the parts warm water, and after, warm fresh grease; and then, outside, some known good oils; give a drachm of Peruvian bark and ginger in gruel, new-milk warm, made of linseed and oatmeal; add a table-spoonful of gin or brandy, and treacle. To prevent the fly: a powder, composed of white lead and white arsenic, to be shaken on with an old pepper box; it is to be had, ready prepared, of any druggist. The most fatal disease is the rot, which is thought to be incurable; but I know from experience, that the progress of the disease may be so checked, that the animal will get fat enough for the butcher. There are various opinions as to the way in which this disease is contracted. I have ever thought it has been by the sheep eating in summer, or autumn, the grass of flooded meadows, or swampy pastures, on which some sort of grub had deposited its larvæ, which are not destroyed by the heat of the stomach, but mixing with the chyle, find their way into the vessels of the liver, where they become what are commonly called flukes, from their resemblance in shape, to flounders; there they absorb the chief nourishment of the blood of the animal, and then, in a short time, cause its death. It may fairly be asked, how is it that beasts eating the same grass are not affected by it? The reason probably is, that the digestion of an ox or cow is so much stronger, that the larvæ are destroyed, and carried away with the food.

An eminent surgeon has informed me that there is no communication with the stomach and the liver, but as he cannot in any way account for the fleuks getting into the liver, I do not give up my opinion. I am strengthened too in my belief from its being well known, that after a frost of 48 hours, or less, sheep may safely be kept in a pasture, which, had they been put in before the frost (even for one day), would certainly in the course of two or three

weeks, he found to have fleuks in their liver, but which is prevented by the frost destroying the larva on the grass. I am quite aware that many other scientific objections may fairly be made against my idea; such as that the worm or grub, a cold-blooded creature, intended to live in common atmospheric air, could not exist in the inside of any animal. Bots, so common in horses laying out at grass, it is well known, are produced from the horses biting each other, in kind fellowship, about their manes, where some sort of fly or moth had deposited its eggs or nits, which the horses thus get into their mouths and stomachs, where they become bots, and make their appearance in the horses' fundaments. It cannot be supposed that instinct points to the moth or fly to leave its egg there for the purpose of its getting into the horse's stomach; it appears to me that it probably only leaves it on that part from finding a saliva there from the playful biting of another horse.—Hearing a farmer complain, in the year 1814, of the great loss he had sustained by the rot in his sheep, I recommended him to try Armitage's remedy; he had no faith in any of the nostrums, it was however agreed between us, that as I was going to London the next day, I should bring a sufficient quantity for a score of sheep, which he was to take on my return, or sell me a score of his sheep for ten pounds. He sent me the sheep. Our farms were divided only by a small brook, but the sheep having to walk a mile to get to my farm, two of them died in that mile. I dosed the eighteen according to directions. Sixteen soon seemed more lively for it; to the two that did not, I gave the medicine I had to spare, which proved to be over-dosing them, and consequently killed them. Thirteen of the others I made fat in the summer, sent them to London, and made about forty-seven shillings a head. One proved what is here called a rubber, which no feeding will make fat; one was drowned. To see what sort of mutton the best was, I had one killed and consumed (all but one leg, which I sent to the farmer), in my own family, who knew nothing of the circumstances attending it, and therefore found no fault with the meat; but some one, I recollect, commended some joint, as being very tender. The farmer could scarcely believe that the leg of mutton I sent him could have come

off one of the poor miserable animals that he sold me. For my own part, I confess I could not relish the mutton, although I felt sure there could be nothing unwholesome in it. The difference between that and the other mutton is, the lean is more tender and less flavoured; the fat is whiter, and the gravy lighter coloured. The farmer informed me some time afterwards of one circumstance which was important. He said he understood I was to have forty of his sheep, and therefore he drew forty of the worst of his flock, and marked them for me; that, the next day, not liking to part with so many at so poor a price, he turned back into his flock twenty of the best of them with the mark on, and every one of those twenty died. A few years ago, I made several inquiries after the medicine, and could hear nothing of it, but found that Armitage was dead. No medicine can make sound a liver that is in part rotten; but it can so stop the progress of this disease by killing the fleuks, as to allow the sheep, with a summer's feeding, to get marketably fat. The chief ingredient in all the remedies must be oil of turpentine.

FOLDING is a good practice on land that will not produce turnips, but will with folding, produce wheat of the very finest quality. So necessary is folding known to be on large, strong, arable-land farms, in Hampshire, and in other counties, that large flocks of breeding ewes are kept for that especial purpose; the wether lambs, when weaned, are sold, and the oldest ewes are drafted to go into other counties to breed fat lambs for the butcher, while the ewes are replaced by their theaves. Folding clover leys on light land for wheat is a good practice, the sheeps' dung being more equally divided over the land than when the sheep are not folded.

BREEDING CATTLE, to any extent, is best calculated for those counties where the land is not rich enough for feeding, or too far distant from London to get fat cattle there without great loss in weight and value, besides incurring great expense; still, however, I have long been of opinion, that breeding on a small scale, on many farms in this county, which are part arable and part grass, might be

turned to a profitable account, provided the dairy part of the system is well managed. An increased quantity of good manure would be made, and the farmer without an annual outlay of cash would, after the third year, have every winter, money coming in from the sale of a few fat steers and cows. The raising a good supply of winter food for cattle, is the very life of farming, for the old remark is a just one—"No food, no cattle; no cattle, no dung; no dung, no corn." I have no hesitation in determining, in my opinion, that the short-horned breed of cattle would answer best for this county. Good heifers may, with good judgment, be selected from the Yorkshire droves that come up, which if put to a well-bred Durham bull, would give the foundation of a good fair stock, without giving any fancy prices. Good cattle cost no more rearing than bad. The generality of Hereford cows give but a short quantity of milk. In Herefordshire their chief object in keeping a herd of cows is the rearing of calves; they do not depend on making their greatest profit by the sale of butter or cheese; wherever they do, the Durham breed answers better. Were I a breeder of Durhams, I should certainly try a cross from a pure bred grey Hereford bull, preserving thus the Durham colour, improving the Durham quality of flesh; lessening their frame, and thus be enabled to keep a greater number of cattle on the same quantity of land: besides improving the quality of the flesh, the size of the oxen sent to Smithfield for sale would be somewhat reduced, and on that account would be worth somewhat more per stone. It must be admitted that the London butchers will give more per stone for a well-bred, and well-fed, Hereford ox, than for a well-bred and fed Durham. Any one having some of the red pure Durhams, bred by the Rev. Henry Berry, of Liverpool, might advantageously cross with a red pure-bred Hereford bull which may at most times be had of Mr. John Price, of Poole House, Upton-on-Severn, and thus preserve the Hereford color. No breed is better suited to such light soils as Norfolk than the North Devon. Mr. Coke's herd of cows are beautiful; most of them are good milkers, and easily made fat, and the steers are excellent workers. Suffolk cows are very good milkers, but sadly ill-shapen about their rumps. I believe that no one at this

time has a larger herd of pure-bred Durham cattle, than Earl Spencer has at his farm at Wiseton, in Nottinghamshire. The breeders of Durhams in this county are the Marquis of Exeter, the Right Hon. C. Arbuthnot, Sir J. H. Palmer, Bart., Sir Charles Knightley, Bart., Mr. Bagshaw, of Newton, near Kettering; and John York, Esq., of Thrapston. The only Hereford breeder now in the county I believe is, Stafford O'Brien, Esq., who, I think, breeds both Durhams and Herefords. The fact is that any in-calved Durham cows or heifers to be parted with are readily sold in any of our fairs and markets, and the Herefords are not. There are four different breeds of cattle in this country that are for different soils, situations, and purposes, superior to any other cattle in the world. The Durhams (or, as they are very commonly called the improved short-horns) and the Herefords, for the best pastures; the North Devons for the short pasture on warm light soils; and the Scots for the wild and cold pasturage. These four breeds of cattle will ever remain pure, because it is thought that they cannot be permanently benefitted by crossing with any other breed. The males of these breeds, with judicious crossing, would improve all other breeds. The Durhams would improve the Lincolns and the long-legged, light-fleshed Glamorgans and Monmouths; the Herefords, the Shropshire and Somersetshire cattle; the North Devons, the South Wales' beasts; the West Highland Scots (which, taking the breed altogether, are as complete in their shape as any breed), these, or the Argyles, would make a very great improvement in the North Wales and Anglesey cattle. It is surprising to see the very great improvement that has in a very short time been made in the Irish cattle, from the introduction of good English and Scotch bulls. There may now be selected from these droves good fair Durhams; and of the smaller kind many which when made fat will pass in Smithfield for polled Scots*.

* One teaspoonful of rhubarb, half the quantity of ginger, and sixty drops of laudanum, if given in time, will stop the scour in calves. For full-grown beasts it will require double the quantity of laudanum, and treble the quantity of rhubarb and ginger. I have found this answer although there are perhaps better preparations to be bought.

At our Society's last annual meeting (1836), the subject for discussion after dinner was the breeding and rearing of sheep and cattle. It appears that the chief part of the most celebrated flocks of pure-bred Leicester sheep, have been bred without any introduction of blood from any other flock. What may be called close breeding therefore, must have been a frequent practice; but whether what I suppose to be called breeding in and in, that is putting the offspring to the parent, is a common practice, I could not understand. From the numbers in a flock of sheep, it cannot be a matter of necessity. The experienced sheep-breeder who proposed the subject for discussion, and was the principal speaker, gave his definition of crossing the breeds of animals, in different terms from what I should. Putting an ass to a mare, I should call crossing the species; a Hereford bull to a Durham cow, or a Southdown tup to a Leicester ewe—crossing breeds. Putting a tup, of one pure and close-bred flock, to ewes, of another pure and close-bred flock; or a bull, of either a pure-bred Durham or Hereford herd of cattle, to cows of another pure-bred herd; this, I should call—crossing of blood. Putting the offspring to its parent, is what I conceive to be the origin of the term—breeding in and in. Some admit nothing to be breeding in and in but putting an own or full brother and sister together, because they say in all other cases there is an admixture of fresh blood. It is probably desirable to avoid breeding in and in, unless there is some reason for so doing; because, generally speaking, a defect in the shape or quality of an animal, belongs not only to the individual, but to the family to which it belongs, and therefore it is probable that by breeding in and in, in the same family, any such defect will be increased: but there may be very good reasons for deviating from this general rule. For instance:—suppose a bull, B, which has some remarkably fine fore quarters, is put to a cow, C (whose fore quarters are defective, but whose hind quarters are perfect), for the purpose of correcting the defect in her fore quarters; and the produce to be a heifer, A, which preserves the perfection of hind quarters remarked in her dam, and is better than her dam, in the fore quarters, but still rather defective in that point, it would be better to put

the heifer, A, to her sire, B, than to any other bull not so good in his fore quarters as B. Many people talk a great deal about breeding in and in, and say (without however producing any satisfactory proof that their assertion is correct), that it weakens the constitution. But the real question is, would any experienced breeder put a female to a male, which, in his judgment, did not suit her, either in shape or quality, because he was not related to her; in preference to putting her to a male who was related to her, but who did suit her both in shape and quality. It is never desirable to run counter to a generally received opinion unnecessarily, even if you believe it to be founded in prejudice; and if, therefore, a man has the opportunity of breeding from perfect males and perfect females, and is never obliged to breed from any animals, either male or female, in which he can discern a fault, he will be wise to avoid breeding in and in. Few people are, however, so fortunately situated, whose judgment is sufficiently accurate to enable them to discover faults when they are before their eyes; and therefore in every other case a breeder will do better to attend to the peculiarities of the animals from which he breeds, and put the males and females together, so as to correct the defects he may see in either, than by fearing to put relations together, lose the opportunity of removing the defects which he may find in his stock.

STEERS OR OXEN, FOR GRAZING.—Every arable farmer should of course winter in his straw-yard as many beasts as he can; the beasts so wintered at home, certainly improve faster when put to grazing in the spring, than beasts in the like condition that have been driven from a great distance. Still, however, as many beasts are wintered chiefly for their manure, on turnips and straw, in Herefordshire, Shropshire, and other counties, they are often to be bought in the spring, at but a small advance of the price in the autumn, which answers better than consuming a great quantity of hay, and injuring pastures by treading. In the handling and selecting lean steers, or oxen, the skin should feel soft and pliable, not too thin nor contracted, as if it could never expand to cover a well-fed, increased carcass. It should feel as if there were something supple under it,

and not as a skin pasted on a deal board. The hair should be soft, not wiry. The head, horns, and shoulders, not coarse, and the latter not upright, but the blades coming properly into the chine, and the outside point into the neck, which will cause the kernel to appear full ; the eyes should be prominent, not sunken into the head. The purse should be of some size, pointing backwards, soft, and mellow ; and not, as is often met with, a small lump, feeling like dried skin, which is an indication that the beast, after good feeding, is not likely to produce much inside fat. The flanks should feel as if there were something between this meeting of skin. The hips should feel soft, and full in the hand. Large round bones, and round thighs, are objectionable.

FAT OXEN.—The hand is applied to the rump, hips, and ribs, to ascertain how they are covered with meat ; then underneath, to the purse, which, if it proves large in the hand, and firm, it foretels that the beast is ripe, and fat inside. The fulness of the throat, prominence of bosom, and covering of shoulders, are points which the butchers much attend to in computing the weight. A little lump, often seen outside, under the root of the tongue, which is called the taste, denotes ripeness ; and so also does a small lump on each side the root of the tail. When the end of the finger is applied between the rump and hips, and the flesh is found to be so elastic as to spring back again on the finger being taken off, this denotes good quality of flesh—that is, fineness of the grain of the meat. But with all the judgment of the most experienced, the meat of some beasts, contrary to expectation, proves hard in the eating. Some years ago, I sold to a butcher of Northampton, two very fine Hereford oxen, for one hundred and ten guineas. They were thought to be equally fine meat, were of the same age, bred by the same person, fed together in the same manner by me, and both killed at the same time, at Christmas. The meat of the one proved fine and tender, of the other, very hard. A well-fed ox should have a well-covered, straight, and flat back : well-covered projecting hips, bowed ribs, sloping shoulders, wide chine, deep fore quarters : projecting bosom, good purse and flank, and not thin thighs.

An act was passed, two or three years ago, that the stone

of meat, sold in all markets, should be 14lbs. instead of 8lbs. as it had long been in London, and in many parts of the kingdom. London is our meat market—the weight common there must be ours. All the reports of prices there, are for stones of 8lbs.; we therefore still compute our weight by the same stones. In many parts of England the calculations are by scores per quarter, which is very easily brought to correspond with stones of 8lbs.; as thus—9 score a quarter is 90 stone; 10 score a quarter, 100 stone.

Experienced breeders only can clearly describe the form and quality of a good bull. I shall therefore merely say, that his handling should be like that of a good steer; but that he should have all the rough character of an entire male animal. Every one should bear in mind that the tempers of high-bred Durhams or Herefords are not at all times to be depended on, however harmless they may appear to be: for men have been killed by bulls who have looked after them from their being calves.

ALDERNEY COWS.—No cows, from their generally gay colour, red and white, look so well in a park as these; their milk produces the richest cream and finest butter. They carry very little flesh when in milk, but when dried of it, may be made very fat beef. The Ayrshire cows are in size, a medium between the Alderney and Durham, are of better frame than the Alderney, nearly as gay in their colour, give a greater quantity of milk, but not of so rich a quality. They will also, when dried of their milk, get very fat. An implement for milking cows has been invented by Wm. Blurton, Esq. of Field Hall, Staffordshire. It is a metal tube, with a syphon at the lower end, and on its introduction into the teats of the cow, the milk flows freely out of the udder, without any manual labour. It is said that 16 cows can be as well milked, and in as little time, as six could be without the instrument, and without doing the cows any injury.

STALL FEEDING, which is now become so much more common throughout the country than formerly, has had the effect of making meat, in most years, as cheap in the spring as in the autumn, which it used not to be; conse-

consequently stall-feeding, of late, has seldom turned out to be profitable, but often, as I have experienced, a serious loss. Meat cannot be laid on lean beasts in the stalls, to repay the expense of the food they consume; the only chance of making stall-feeding answer is, to put in the beasts which prove to be only three parts fat at the latter end of autumn, when grass will no longer improve them, but which will in the stalls, increase in their weight, and improve in the quality of their meat; still however, if the price of beef when these beasts become fat should be the same as when they were put into the stalls, the expences will not be repaid. Meat must be a penny a pound more in the spring than it had been in the autumn, to repay the great expenses of stall feeding. It is carried on to a very large extent in Norfolk and Suffolk, and although from the great expense of oil cake consumed, the farmers certainly must lose by every beast they feed, still they must continue the system on their large arable farms, for the purpose of turning their straw into good manure.

On beasts being tied up, white turnips will do for the first week or so; they keep beasts cool inside, but there is so very great a proportion of water in them, that they are not of half so feeding a nature as Swedes. Those who have mangel wurzel should keep it as a *corps de reserve*, for spring, or severe frost, when the turnips are frozen, which are often given to beasts almost as hard and as cold as stone, and which, in such a state, cannot be good for them. The turnips should be cut—there are many machines for cutting or slicing. The machine I use, and like better than any I have seen, I have had five-and-twenty years; it was made at Banbury, turns very easily with a large fly-wheel, and cuts the turnips very expeditiously into irregular pieces, which I prefer to slicing them. My method of feeding, when the beasts have been up a little time, and when on what I call full feeding is thus:—first feed in the morning, half a bushel of cut turnips, and afterwards half a bushel of cut hay, with about a quart of meal in it. These feeds repeated at noon; in the afternoon, a feed of turnips, and ⁺supped up at night with hay in the rack, and three oil cakes in the manger. Should oil cake be cheap, give more of it,

200 lb a line cut hay mixed with meal

and less of meal. The difference of the weekly cost of my way of feeding is as hereinafter stated.

Oil cake at £12 per thousand in London, with the cost of about £2 per thousand getting home, will bring the cost of each cake to very nearly three pence halfpenny. At £10. 10s. to three pence.

The different weekly cost of feeding for each beast will be as under :—

	s. d.		s. d.
10½ bushels of turnips	3 6	Half a bushel of linseed	3 6
1½ cwt. of hay	5 10	Three gallons of meal	1 6
		1½ cwt. of cut and uncut hay	4 2
		Turnips.....	3 6
	<hr/> 9 4 <hr/>		<hr/> X 12 8 <hr/>
Turnips.....	3 6	21 oil cakes at 3d½.	6 0
1½ cwt. of cut and uncut hay	5 0	Three gallons of meal.....	1 6
Half a bushel of meal	2 0	Cut and uncut hay.....	4 0
	<hr/> 10 6 <hr/>	Turnips.....	3 6
			<hr/> X 15 0 <hr/>

One acre of a good crop of Swedish turnips will produce sufficient for ten beasts, kept in the stall six weeks.

No food can be given to stall-feeding beasts, that will fatten them so soon or so well as linseed oil-cake. It certainly is expensive feed, but not so expensive as it appears to be, taking into consideration that it fattens quicker. The expense of it compared with other stall-feeding food, is thus :—when it costs the consumer at home £12. 10s. per thousand, each cake said to be 3lbs. (but never are quite so much) ; the stone of 14lbs. costs 1s. 3d½. Linseed, at 56s. per quarter, 1s. 11d. Barley meal, when the price of good grinding barley is 26s. per quarter, the stone will be about 11d. The stone of bean meal, when beans are 32s. per quarter, the same. Some winters, I have fed with linseed instead of cake, and found it answer very well, although it added to the trouble of feeding. My mode of preparing it has been to break it in a little hand-mill, and steep it in cold water, in seven tubs, of a size sufficient for one day's feed ; in this way it will have been steeped seven days before it is mixed with cut hay and

+ for two gallons water in each wk
add 1/ in each wk.

barley, or (that which is better), bean meal. If steeped in hot water, two days will do, if steeped longer than three, it is apt to get a little sour, which I think not quite so well for the beasts. There are annually great importations of linseed, from which I conclude that it can be imported at a less price than it can be produced here. It is grown pretty extensively in some parts of the kingdom; it is however to be regretted that the cultivation of it cannot be more general, and prevent the necessity of such great importations; and thus circulate amongst the English farmers a large sum of money which now finds its way into the pockets of foreign farmers. It should however be borne in mind that every ship-load of linseed or rape, or of cake made of either, is so much manure brought from foreign lands to enrich the land of this country. I have not yet made such use of wheat in feeding as to enable me from experience to speak decidedly about it. I have hitherto used only my tailing wheat, ground with barley, and thought it answered very well. But I hear of numbers of beasts being now fed entirely with wheat; and, it is said, quite as well fed, and at a much less expense, than with oil cake at its present price. The way of preparing it for feeding is thus:—steeped 36 hours; then laid for five days on a brick floor, turning it over once a-day; then laid on a boarded floor, about six inches thick; in two days it will be fit for use. One gallon and three quarters, in the grown state, per day for each beast, is said to be about equal to one bushel per week of dry wheat. Having lately seen one ox that was said to have been entirely fed on wheat, leaves no doubt in my mind that it must be a very nutritious food for beasts; I cannot, however, restrain some feelings of regret that this grain, intended only for the use of man, should be thus appropriated. Most likely, after two more harvests, the price of beans and barley will correspond, as it used to do, with the price of wheat, and then it will no longer be given as food for beasts. After all the great trouble and expense of stall feeding, this mortifying circumstance has frequently occurred: the beasts are sold in the London market at a ruinous price to the stall-feeder, at less than they would have made in any other market; the butchers knowing that the beasts, having been so much

knocked about in Smithfield, could not be turned out of an overstocked market to come into the next, have frequently bought them at their own prices. It may not be thus when the Islington market is firmly established. The amount of the grazier's or stall-feeder's profit, much depends on the salesmen they employ. Theirs is an office of great trust and confidence. In justice to those employed in this part of the country, or in fact in any other part that I am acquainted with, it is fair to say that I never heard of an instance of any untrue return made of the prices that beasts or sheep have sold for. Salesmen, from being regularly in the market, must, if they are not poor creatures, be good judges of the weight and the quality of the meat of the beasts or sheep they have to sell for their employers. But besides having good judgment, a Smithfield salesman ought to be a man of good temper, to bear the great under-value biddings of some of the butchers, in an overstocked market. He ought to have capacity to form a quick and correct judgment, when, from the state of the market, to give way, in the prices he has asked, and when to be firm; and he ought, at all times, to spare neither pains nor trouble, to do the best in his power for those who employ him. To gain knowledge as to weight and quality, I for some years sold my own stall-fed beasts in Smithfield. I therefore know how the business is there conducted, and I am quite satisfied that a clever, pains-taking salesman, who regularly attends the market, can, on the whole, make more of grazier's or stall-feeder's beasts, than they themselves can, provided he has not too large droves. Objections are reasonably and fairly made, to salesmen who are in the habit of jobbing.

I have given rather lengthened details of stall-feeding, from its having been for some years my hobby; but I confess rather an expensive one. No fox-hunter, however, can look with greater pleasure on his stable of fine hunters, than I have at my stalls of fine beasts. One inducement for my stall-feeding on a large scale, has been my wish to find employment for my regular number of labourers throughout the winter. I have tied up, for several years, in the course of the winter, one hundred and fifty beasts; last year, only forty, chiefly well-bred Durhams, grazed in thi-

county, and I never had beasts that improved faster. I had some fine Herefords, bought good meat at Hereford October fair, but from the drift home (as is always the case), they made little progress in feeding, in the first three weeks of their being tied up. If beasts that are put up in warm places to stall-feed, have a great deal of long hair on their chins, top of their shoulders, and necks, it is a good plan to cut it off, for when the beasts are thriving, they perspire much in their fore-quarters; the long hair consequently gets matted together, and makes them very itchy and uncomfortable. Brushing also tends to their comfort and expeditious feeding.

Many beasts are subject to be blown after eating their green food. In such case, let them be kept moving in a yard till the swelling goes down. If cutting, to let the wind out, be necessary, it should be done with a pen-knife, on the left side, between the haunch-bone and the first rib.

It is not very probable that either grazing or stall-feeding will ever again prove a profitable concern. Great quantities of fat beasts and pigs will be imported from Ireland, even should the condition of the Irish poor improve so decidedly that the consumption of meat be increased two-fold, for Ireland would still be capable of producing a sufficient quantity for export to depreciate the price of stock in this country. Those will have the best chance of making a profit of grazing who can get beasts forward in winter, and who have rich grazing land to make them early ready for market, there being generally a fair demand for good beef, in the months of July, August, and September. Times will not admit of giving exorbitant prices for fancy breeds; still, however, I have found that it well answers to give something more for beasts which evidently show some good breeding, as such will fatten much sooner than mongrels, and therefore at less expense; and although there is not now the same difference as there used to be in the price of meat of various qualities, yet the finest is most readily sold at the top price of the market. There cannot be a question but that in the large breeds of cattle, the competition is between two breeds only—the Hereford and the Durham. I retain the same opinion as to the merits of these two excellent breeds, as I expressed more than twenty years ago. For

grazing, I prefer Herefords—for stall-feeding, Durhams; having found that the latter increase faster in weight, and that if highly fed, they become more even carcasses of beef, and are less likely than many of the Herefords, to prove patchy. It is said, and I think must be admitted, that from their larger frame, that Durhams consume more food than Herefords. As I am not biassed in favor of either, I think it fair to state what J. T. Senior, Esq. of Broughton, in the Vale of Aylesbury, says, relating to these two breeds. Mr. S says, that for many years past, he has himself sold, at the Christmas Smithfield great market, a drove of his best-fed Hereford oxen; that near his drove there has been, for several years, Sir Charles Knightley's, of fine, well-bred, and well-fed Durhams; having thus had a good opportunity of examining them, he is convinced that he has yearly obtained as high a price for some of his Herefords, as has been made of some of Sir Charles's Durhams, which weighed each twenty stone more. I have seen the Fawsley and the Aylesbury land; the former is good, but the latter is better. As many of the London butchers well know the superiority of the land of the Vale of Aylesbury, this may induce them to give an extra price for Mr. Senior's oxen, in the expectation, and particularly as they are older beasts, of finding in them an extra quantity of fat, for which, at Christmas, there is always a very great demand.

The old Norfolk breed of cattle were bad. The late Mr. Bakewell said, they would be fairly shapen animals, if their bodies were turned upside down. The late Mr. Reeve, of Wighton, near Walsingham, who was a judicious and long-experienced breeder of both sheep and cattle, so improved the breed as to have a herd of well-shaped polled cows; appearing as though they had a cross with the Galloway Scots. I have often seen, in Smithfield, well-formed and well-fatted Norfolk homebreds, much resembling Galloways, excepting in colour. As the Norfolk land requires a great quantity of good manure, it answers there, to keep the beasts a long time in the stalls; therefore all the Norfolk stall-fed beasts—be they of what breed they may—arrive in Smithfield better fed than beasts from any other county, the butchers, therefore, will give a greater price for them. They are, in the spring, the chief supply of best beef, for

London consumption. A great part of them are polled Galloway Scots, which, in their then state, are the most beautifully shaped animals that can possibly be seen; their whole carcass is evenly fed, without any patches of fat; the hind quarters of the beef, when hanging up in the butcher's shops, have all the appearance of the finest eating beef, the lean of a good dark colour, and the fat firm, and bright in colour. The late Mr. Bakewell was a singular sort of man, but his name will never be forgotten by sheep-breeders, for his great improvement of the breed of long-woolled sheep. About five-and-forty years ago, he played off an odd kind of trick with Mr. Coke. He went to Holkham, when he knew Mr. C. was from home, and purchased three of Mr. C.'s tups, which were of the old horned, black-faced breed, the only kind of sheep then kept in Norfolk; picking out the plainest, longest legged, and largest horned. When persons came to see the Dishley breed of sheep, these tups were previously driven out of their pasture into a confined place. After the improved Leicester tups had been seen, the Norfolks were exhibited. They were let out of their confined place to return to their pasture; but in their way to it they had to leap a great height over a leaping-bar, which they performed very cleverly. Thus making Mr. Coke's Norfolk sheep a capital foil for the Dishley.

About the year 1808, the late Mr. Webb Hall and myself carried on a good-humoured correspondence, in the Farmer's Journal, on Merino Sheep, without knowing each other's name; he writing under the signature of "Alpha," and I, under that of "A Northamptonshire Farmer." He was a great advocate for disseminating the breed throughout the country. I thought this would be a national misfortune; that the consequence would be, a want of mutton; that the supply would not be near equal to the demand; that it was better to go on with our native breeds of sheep, and import wool, than to run the risk of wanting an importation of mutton. Mr. Hall was a most able writer, and a great contributor to the Journal, which, at that time, was so well conducted, and contained so many original letters on agricultural subjects, as to make it a very interesting paper to those engaged in agricultural pursuits. There are still several flocks of pure Merinos in this country, which

we may conclude answer to the owners of them, or they would not be kept. A few are occasionally wanted for exportation to different parts of the globe. Among those who retain their Merino flocks, are Lord Western, and John Bennett, Esq. M.P. for Wilts. As persons probably will look into this book, who know little about sheep and cattle, it may be necessary to explain how the ages of them may be ascertained by examination of the mouth. I conclude that no one who has ever owned a sheep is not aware that they have no front teeth in the upper jaw; but to my surprise I have lately found that some who have long kept cows, and others who have fed bullocks, were not aware that cattle also had no teeth in the upper jaw, except grinders. The ordinations of nature, in all cases, are most wise. Front upper teeth, for ruminating animals, would be most inconvenient, if not a preventative, for chewing the cud. Sheep and cattle, at their birth, or soon after, have eight small sucking teeth.* When one year old, the two middle ones fall out, and two larger come up in their place. At two years old, two more large ones come up; at three, two more; and at four, the last two of the sucking teeth fall out, and the last two of the broad teeth come up, and the animal is then called full-mouthed. Sheep, kept on stony land, are apt to break some of their teeth, and thus lose them earlier, but naturally they would retain them till they were about seven years old. Favorite ewes are often kept on for breeding, when they have no teeth but grinders left: it appears extraordinary that their gums should be strong enough so to bite the grass as to enable them to get as much of it into their stomachs as is necessary for their supporting lambs, and afterwards to get marketably fat.

Beasts do not lose their teeth as sheep do; they wear down, but do not commonly drop out. I once bought a lot of aged Highland Scots, that had been working in a coal-pit for some years, without once seeing the light of day; some of them, I was afterwards informed, were two-and-twenty years old. They throve well in the stalls, and

* One part aniseed, nine parts wheat flour, made into stiff balls with linseed oil, put down the throat, after sucking, helps greatly to fatten sucking calves.

paid for the food they consumed. I ^{make} them thick fat along their backs, and as their bellies came to be very near to the ground, they no doubt produced an extraordinary quantity of inside fat. The London butchers therefore made no complaint; but I am doubtful if their customers might not complain of the hardness of the meat. I heard a person say, whom I have ever deemed a good judge of eatables, that the best beef he ever ate was of a cow of his, that he knew to be twenty-two years old. From four to six years, I should think the best beef. In the breeding counties, an ox is very seldom killed; the beef there, is generally either heifer, two or three years old, or old cow; therefore is seldom prime meat. The best beef to be met with in England, or I conclude I may say in the world, is in London; but there also is sent the worst meat that the country produces.*

GRAINS are better food for cattle than for pigs, which swallow them without mastication, and thus the nourishment in them is not extracted, as it is by ruminating animals. Grains from private brewing are best, as they have more goodness left in them than those from public breweries. Cattle in the stalls cannot be fed quicker or cheaper than with distiller's wash and grains; but the fat part of the meat is generally high coloured, and does not become firm.

After having written thus much of my little pamphlet, I met with a letter of mine, on the Breeding of Cattle, and Cattle Shows, dated September 25, 1826, which appeared in the "Northampton Mercury," and of which I am induced to give a copy herein:—

"TO THE PRINTERS OF THE NORTHAMPTON MERCURY.

SIRS,—I do not hesitate to reply to the letter addressed to me in your last week's Paper, although it is from an anonymous Writer; and will herein state the arguments I made use of at the annual dinner of the Farming and Grazing Society, held at the George Inn, Northampton.

* It is very difficult to describe that sort of touch a beast's skin should have, which denotes what is called "good handling." The nearest thing I can compare it to, is, passing the fingers over Indian-rubber.

It is very certain that if the same breed of Sheep and Cattle were in existence now that were sixty or seventy years ago, it would be quite impossible to supply the greatly increased population of this country, with a sufficient quantity of animal food. The first person who turned his whole attention to the improvement of the breed of sheep and cattle, was the late Mr. Bakewell, of Dishley, Leicestershire, whose memory will ever be respected by the breeders and feeders of cattle, and deserves to be by the country generally; he, by selecting from the different breeds of sheep then in being those which showed the greatest aptitude to fatten, and with nice discrimination in crossing, in the course of time had a flock of sheep superior to any other man's in the kingdom. He turned his attention also at the same time to cattle, and produced some very fine animals, but was not so successful in establishing a breed for posterity as he was in sheep, which are of such inestimable value to the country that it is not likely it will ever become extinct. Breeders in other parts of the kingdom where their cattle were finer, and thus had a better foundation to work upon than Mr. Bakewell, followed his example, and by carefully selecting for breeding, animals of the finest form, softest skin, and the other usual signs denoting the greatest propensity to fatten, have by these means produced in this country some breeds of cattle superior to any other in the world, namely, the Herefords, Durhams, and Devons; the first two both so good that the most competent judges are puzzled to decide which are really the best;—to which may be added the Scotch, a smaller kind, well adapted to breeding in Scotland; and, fed in England, producing beef of as fine, or perhaps finer quality than any other.

The late Duke of Bedford was the first to establish a meeting for a show of sheep and cattle, to bring the different breeds together for competition, for prizes liberally offered by his Grace; by the Woburn, and by other exhibitions, the improved breeds have got into pretty general circulation throughout the country; but as there are yet in different parts of the kingdom numbers of inferior animals bred and fed, where superior ones might be kept at the same, I may say at less expense, it is certainly most judicious to continue these exhibitions of animals till the inferior breeds are become nearly extinct.

Your correspondent says as Lord Althorp so strongly encourages the feeding and exhibiting such fat cattle, that it must be right, although he cannot see it; permit me to observe, that it is evident your correspondent well knows that Noble Lord.

That there are animals fed fatter for these exhibitions than your correspondent and many others may like to eat, I will readily agree to; but as there are yet many old fashioned stomachs left in the country, strangers to bile, persons who are fond of this very fat meat, and can eat it without any inconvenience, there is not the waste your correspondent imagines; but supposing that there is some waste of provender in making animals so very fat, the numbers so fed, compared with the number fed to produce meat enough to supply the country, is so very

trivial as not to be worth consideration. Most persons are apt to view the stock on their own farms with a partial eye, and to fancy they are better than they really are; by attending the cattle shows they find out their mistake, and take such measures as are likely to improve the animals they breed, and to be more particular in their purchases for feeding, by buying a better sort than they had been accustomed to do, which may be fed (as I have before noticed) at less expense than inferior ones can be. The perfection of all animals is this, to produce the greatest quantity of food for man, having consumed the least quantity of food themselves. As the best breeds of animals of the present day come so much earlier to maturity than the old breeds could be brought to, as the older an animal is the more it eats, I am persuaded a given quantity of meat may be produced from the best animals now bred which have not consumed above two-thirds, and perhaps not more than one-half, of the food that those of former times did to produce the like quantity; the present occupiers of the land are thus enabled to keep an increased number, and send a greater supply of animal food to market, and this surely must be a great national benefit. Lord Althorp very properly prohibits in his prizes for sheep the feeding with oil cake, corn, or any other artificial food, that the sheep may not be shown in an unnatural state; his Lordship also makes the same prohibition as to beasts up to the first of August, the time allowed by the Smithfield Club for oil-cake to be given to the beasts shown for the Smithfield prizes; and as most of the best beasts which have been exhibited at Brompton are afterwards shown at Smithfield, his Lordship accommodates his regulations to theirs.

I think the feeding of sheep at all times of the year (except giving them a little corn in a very severe winter, when turnips are not to be got at, or are spoiled by the frost), ought to be confined to hay and green food; summer and autumn-fed beasts also; but as beef is very seldom met with too fat for the generality of people, although it may be for your correspondent, and as oil-cake so much expedites the stall feeding in winter, it may then be given to advantage, if the price of beef will allow the use of such expensive food. Most persons formerly sickened at the very sound of oil-cake, but that prejudice is now nearly done away with; three-fourths or more of the finest beasts that go up to London to be slaughtered in the winter, have had oil-cake given them with other food, and no where is beef met with so fine as in London; and as oil-cake is produced by taking away the oily particles from linseed, I do not see why any person should attach any disgusting ideas to such a vegetable substance being given as part of the food for beasts.

In the hope that I may have answered your correspondent to his satisfaction, and given such explanations as may appear intelligible to those of your readers who take an interest in Agricultural pursuits, without having tired their patience, or taken up too much of your Paper,

I remain, Sirs, your's, &c.

C. HILLYARD."

As it is now admitted, by all who understand the subject, that Cattle Shows have been very instrumental in bringing about the great improvement that has been made in the breed of the sheep and cattle of this country, I have little to add on this subject. The annual meeting of the Northamptonshire Farming & Grazing Society, and Cattle Show, is always held at Earl Spencer's farm, at Brampton, four miles from Northampton, either on the Wednesday or Thursday before Doncaster Races. Some years, as many as a dozen of the London Christmas Show of Beasts, have been previously shown at Brampton. Last year, there were six, three of which gained prizes.

MEASUREMENT OF CATTLE, to compute the weight of the carcass, when slaughtered. This, for many years I have been in the habit of doing with great success. In the year 1814, I printed, to circulate among my friends, a book to show the weight of animals, by measuring their girth and length; and in a preface explained the necessary attention to be paid in the measuring. The late Dr. Woolaston formed from my book, for Lord Althorp, a sliding scale rule, which is to be had at Carey's, in the Strand, and which, as it will measure the very largest of beasts, is preferable to the book. The measurer should be a sufficient judge of beasts to know whether they are marketably fat or not; and also something of their proper formation, so as to be capable of forming a just opinion whether they are proportionably heavier or lighter in their fore quarters than in their hind quarters, and of making such necessary allowance in computing the weight from the book or scale. I gave Carey the printed directions of my book, for the sliding scale. I wish now to say, in addition to the preface to my book, that if a beast is more than marketably fat, about $2\frac{1}{2}$ per cent. may be added to the computed weight in the book; and that if the beast is made so fat as to become a show beast, 5 per cent. may be added. I have generally found that the Durhams, from being more fleshy, prove according to their dimensions when quite marketably fat, somewhat heavier than the Herefords. In justice to the Hereford breed, it should be observed that well-bred and well-shaped store Hereford oxen and steers are to be had in great plenty; but that really

good Durhams are so very scarce as seldom to be met with for sale. No two persons can meet upon more unequal terms to make a bargain than a person who occasionally only has a beast to sell, and a butcher who is buying and killing one or more every week, and therefore must be a pretty accurate judge of the weight of beasts. With the aid of the book or scale, this great inequality for making the bargain is in a great degree corrected—the one measuring with the eye, the other with the tape. The live weight of a beast being ascertained, by being put on a road weighing machine, a pretty correct idea may be estimated of the weight of the carcass, by deducting one third, and five per cent. from the gross weight.

CART HORSES.—It is not necessary for ploughing light, or loamy soils, to work real cart horses; still as light horses are not to be depended on for a long, and a strong pull when wanted, it is necessary to have three strong fillers. I should prefer a Suffolk or Cleveland bay team to any other. For strong clay land real cart horses are best; and by buying in colts at two years old, or breeding, and selling them at five or six, for London drays or other purposes, farmers may get their work done, and on this plan make a profit. With such a system they must be well kept; but on light soils, where the work is not hard, the cart horses do not need expensive feeding. As I seldom grow oats, and never beans, mine scarcely know the taste of either; they occasionally get light tailing barley; but their chief food during the winter is barley chaff mixed with carrots, chopped very small, and given at the rate of a bushel daily between four horses. When my carrot crop has failed, they have cut Swedish turnips, double or treble the quantity, and also bran mixed with the barley or wheat chaff. As my cart horses during winter work every day in the week, but one, they certainly are not encumbered with flesh, but they lay on a sufficient quantity of it in spring and summer when soiled in the yard with vetches. If I were younger, and farmed largely, I would certainly have a chaff-cutter worked by a horse, and have all horse food given in the manger, there is then no waste, the unpalatable parts of the hay are thus consumed.

LAYING DOWN LAND FOR PERMANENT PASTURE.—There is no operation in agricultural pursuits, about which there is such a diversity of opinion as to the best manner of converting tillage land into permanent pasture. Some land is so naturally disposed to produce good grass, that it is not necessary to sow any seeds. A great part of the finest pastures in Leicestershire became so without any being sown, but the greater portion of soils, if left to nature, would produce nothing but worthless kinds of herbage. Different kinds of soil require different modes of management to bring them sufficiently fine to receive the grass seeds; a great variety of which is necessary for all soils, so that at all times of the year—winter of course excepted—there may be some of them in their greatest perfection. The late intelligent and much to be regretted Sinclair, in his publication, "*Hortus Graminum Woburnensis*," says, "The scented vernal grass, meadow fox-tail, and smooth meadow-grass, give the first nutritious bite in March and April, others in summer, and the broad-leaved bent and aftermath, or eddish of cock's foot, meadow fescue, and others, the richest keep in autumn and winter." For converting arable into pasture land, the former should be fairly but not over-dunged, and the dung well incorporated with the soil before the grass seeds are sown. Lime also should be used. A top dressing of well-rotted and well-pulverized manure should be laid on the young seeds to protect them in winter. Common rye grass, or broad clover, should never be sown for permanent pasture. White clover, and cow grass—which it is most difficult to get genuine—should form a great portion of the seed sown; an operation which should be performed in May, with a very light sowing of barley or oats. If the land cannot be got quite clean and ready so soon, the seeds are best sown without corn. In such case, I recommend that the scythe be skimmed over the young seeds in autumn, in preference to having them eaten down by sheep, or letting them stand to die down in winter. I have, within these few years, turned into pasture several small closes of the hanging of hills, at Thorpeland, in different ways: some, by sowing the seeds of a very clean piece of good pasture—the other, with bought mixed seeds. All have done well, and now

appear like old pasture land. It cannot be expected that landlords should permit fine, old, rich, strong land pastures to be ploughed up, but as the laying down to permanent pasture is now so much better understood than formerly, many old pastures with bad herbage might be broken up, a crop or two of corn taken to pay expenses, and afterwards turned into a good pasture, instead of allowing it to remain an indifferent one. Few people would think of laying down light land for pasture, except for the convenience of having grass on a particular part of a farm—perhaps near the farm-house. In such a case, inoculation is probably best. On Mr. Coke's estates (where it was first introduced by Mr. Blomfield, a tenant), it has succeeded excellently well: but I have known it, in other counties, completely fail. There has always appeared to me this disadvantage in inoculation: the chief part of the best grasses have tap roots, which are cut in two, in cutting the turf; and therefore I conclude—perhaps erroneously—will not grow. It is to this, and sometimes to the very bad sort of turf that has been made use of, that I attribute the failures that I have seen. If land intended for permanent pasture is not very foul, it may be got clean, to be sown with white turnips in July, and the grass seeds sown in the spring, with a light sowing of barley or oats, but if it has a great deal of twitch in it, or the roots of thistles, docks, or nettles, it is better to keep it on the fallow the whole summer, for if such roots are not killed, they will send forth shoots that will be a continual plague, so long as the land remains in pasture.

LUCERNE.—I grew it for my cart horses, for some years, and thought it answered very well, but finding that they liked vetches so much better, I now grow them instead of lucerne. It should be sown in rows, about nine inches apart, and about 12lbs to the acre, in April or May; but should the fly take it, it may be sown in August. It must be kept clean, for although it has an immense tap root, if grass is suffered to grow round the top of the root, it will destroy the plant. Some persons sow it broadcast, and as much as 40lbs. per acre.

RYE-GRASS.—The greater part of it sold is grown on

very badly cultivated farms, and therefore very often full of twitch seed, which is difficult to distinguish from rye-grass, being similarly formed, although with a much longer tail. Rye-grass should not be sown for a one year's clover ley. The Italian rye-grass is said to be the most productive and best. My first crop is now growing for seed, and promises to answer my best expectations. I have little doubt but that after the crop is carted-off, and the land manured, I shall, with one ploughing, get a good fair crop of white turnips.

For a CLOVER LEY, to remain one year only, 18lbs. of broad clover, without any rye-grass : for two years—10lbs. of broad clover, 6lbs. of Dutch, 4lbs. of trefoil, and half a bushel of rye-grass—to the acre. Clover, or seeds of any kind, cannot be sown by hand any thing like so well, or so expeditiously, as by a machine, such as I have used for five-and-twenty years. It is a long box, wheeled on a sort of barrow, the seed forced out by brushes, from twenty-one openings, each having one large hole for rye-grass, and twelve small holes, to let out clover, or any other seed ; and according to the number of small holes left open, will be the number of pounds sown to the acre. Clover-seed and rye-grass can be sown mixed, but they are best sown separately ; each sort is thus more evenly scattered over the land. It was originally made at Farnham, but the patent being out, it is now made in different parts of the kingdom. It was intended also to sow turnips broadcast, but as that is not my practice, I had a row of ten pipes suspended below the box ; it will therefore drill them, ten rows at a time, 13 inches apart, on land that has an even surface.

NETTLES.—The most effectual way to destroy them on grass land is, to cut the turf in which they grow, pull the nettles out of it, dig the roots out of the earth, and then put the turf down again.

THISTLES are very difficult to destroy, in grass land. After trying various ways, I have found that pulling them up with a pair of pincers in May, when the grass is of some length, and a full crop of grass is to be afterwards mown, few thistles will come up the next year, and not a quarter

of the original number, the year following ; and if the grass is annually mown, the thistles will then be nearly destroyed. In pulling up, we find that all the roots (which are from six to eighteen inches long), are shoots broken off from roots, running horizontally a great depth in the earth. The broad, or what with us is called the pod-thistle, not having a tap-root, is easily pulled up with a docking-iron, and is thus destroyed. The growth of this kind of thistle is an indication of poor land : not so the growth of the other kind. No thistle on a farm should be suffered to run to seed, if it is possible to prevent it. Many persons think that when the thistle-down flies about, the seed has dropped from it. I much doubt if it is so, and therefore am careful not to let any thistles go to seed, either in my fields or hedges, and to keep a look-out that none mature in the roads adjoining my farm. If every shoot is spudded up as soon as it appears above ground, it will much tend to get rid of them, for no root can flourish in the earth, without having communication with the atmospheric air.

DRAINING.—Where it is wanted, it is useless to think of entering on other improvements of the land. A complete knowledge of the art of draining is not wanted to carry off what is merely surface water ; but the water that lies deep in the earth, and only rises to the surface in particular parts of the field, requires the skill of a scientific drainer, so that no greater length of deep, and consequently expensive draining is made, than is absolutely necessary. Sir C. M. Burrell, Bart. M.P. New Shoreham, has informed me of the surprisingly great improvements that have been made on his estates by Pearson's Draining Plough. All particulars relating to it are fully detailed in a pamphlet, written by Thomas Law Hodges, Esq. M.P. West Kent, which is to be had at Ridgway's, Piccadilly, London.

A most effective surface draining has been accomplished on Lord Spencer's estate, at Wiseton, in Nottinghamshire, by means of an eight-horse power steam-engine. Five hundred acres of swampy meadow land, lying on both sides of a river, and lower than the bed of it, bearing only coarse aquatic grasses, of little value, not worth more than fifteen shillings an acre to rent, now become worth full five-

and-twenty. The cost of the engine was £520; the necessary buildings, and iron pipe, twelve inches in diameter, lying under the bed of the river, £400. For this outlay of capital, and the annual expense of coals, and labour to work the engine, not exceeding £60, there is an increased annual value of £250, on this part of his lordship's estate. Besides this, the engine, whilst throwing up the water to convey it into the river, grinds corn, cuts turnips, hay, and straw—pumps water for the cattle in the yards, and houses; and would, if required, thrash all the corn. Had there been a thousand, or more acres of the land, the engine would have drained it, with scarcely any additional expense.

The most extensive drainage that I have heard of in England, has been effected by an outfall, commencing about six miles east of Wisbech, and terminating in the deep water of Wisbech eye, which is an inlet of the German Ocean. The length of the artificial channel is eight miles; the width, from 150 to 300 feet; the depth, not less than from 25 to 30 feet, on high water, of a spring-tide, and from five to ten, at low water. It drains about 100,000 acres of fen-land, lying between the rivers Nene and Welland. This drainage is accomplished without the aid of any wind or steam-engines, as the Nene outfall daily ebbs out low enough to provide for the perfect drainage of all these fens, at all seasons, without a day's interruption. It also enables vessels, of 300 tons' burden to reach Wisbech, which was formerly only accessible (and that with difficulty), to vessels of about sixty tons. It has enabled 1,500 acres of land, of excellent quality, to be embanked from the sea; and will, in a few years, afford the means of embanking about 4,000 more. The work was begun in 1827, and opened for use in 1830. It has cost about £200,000, and about £150,000, or rather more, has been spent in adapting the interior drainage of the fens to the improved outfall. Great works of this kind add to the wealth of the nation, not only by increasing the produce of the soil, but by augmenting the source of employment for agricultural labourers, they also add to the nation's independence, by preventing the necessity of importing foreign corn. Had there been no corn-laws, probably no persons would have

been found, to embark their capital in this great drainage of fen-land.

PLANTING, and bringing into cultivation a tract of wild, uncultivated land, would be, I should think, if not a poor tenacious clay, a very interesting employment for any young man to superintend, who owns such a property. The first step should be to fix on the spot where the necessary buildings should be erected; the next, where plantations are to be made, to produce useful timber, and to afford necessary shelter for stock; having in them a great variety of young trees, so that those which are of the quickest growth to come into use, may be cut down, to let in all necessary air for the others. Some, thus employed, might live to enjoy the same gratifying feelings that Mr. Coke experienced, about three years ago, when, with Lady Ann and his four sons, he was on board a vessel, launched at Wells, which was built of oak, produced from acorns of his own planting.

Great injury has been done to much timber by cutting off large shoots from the trunk and principal branches of trees, close to the bark; the bark will soon cover the amputated shoot; when the tree is cut down, those parts will appear swollen, and when cut into, the rotten shoot is found. If some length of the branch had been left, before the bark could have closed, the dead shoot would have been forced out by the growth of the tree.

FENCES.—It has long been my practice to keep the hedges, which separate arable fields, very low; and am surprised that such is not the general practice, as high hedges are attended with these disadvantages:—loss of ground, production of palt, and of an inferior quality of corn, growing near the hedge, which it is difficult to get dry when cut. A high hedge is a harbour for birds, and is often so thin at bottom as to permit sheep to creep through. Formerly, the cuttings of a high hedge brought a good price for baker's faggots; coal is now used, and thorns are therefore worth very little. Every cut with the hatchet should be made upwards, to prevent bruising the stock. Hedges which are to be fences against cattle should, when

cut, be plashed or layered; but those which are for sheep only, should be annually slantingly trimmed up, and the top thus kept thin.

All trees, in arable land and hedges, do much injury, but the ash the most, the roots of which run to a great distance, horizontally, near the surface, taking nearly all the nourishment from the earth, so that neither corn nor turnips which grow under them, are ever worth much. Every ash tree grown in an arable land hedge row, has done five times the amount of damage to the occupier of the land than the tree is worth when cut down.

THE WIRE-WORM.—I gave my opinion, some years ago, at the annual meeting of the Northamptonshire Farming & Grazing Society, that this destructive creature was the larva of the Harry long-legged fly; but although I produced both the fly and grub, to show their resemblance, I could get no converts to my opinion. It is now, however, pretty generally admitted that it is so. I have seen, in August, thousands of these insects, hovering over pastures and clover leys, in acts of increase, where they no doubt deposit their eggs. Formerly, I sustained great losses in my wheat crops by it, but not of late years, having wheat after a one-year's clover ley, instead of after a two-year's. I know not how it is to be destroyed in the land: that elegant little bird, the wagtail, will pick up every one it can get at. Half-ploughing the land, in November, might be of some use.

OLD PASTURES.—I have heard of extraordinary good grazing land, in Yorkshire, Lincolnshire, and in some of the fens. The best I ever saw is in the Vale of Aylesbury. These superior pastures will feed one large ox, and one large wether sheep, or ewe and lamb, per acre; but it may be called good pasture land that will feed two oxen for three acres, and one ewe and lamb per acre. There are different opinions as to the number of acres that an ox-grazing pasture ought to contain. This must mainly depend on the supply of water. Sixty or seventy acres, well supplied, and the land not being some parts high, and some low, should I think, be divided; but if it were so, I think not; for

cattle, in the different changes of weather, much like a change of ground ; the high for coolness, and to be less tormented with flies in hot weather, and the low to escape the surly blasts of winter. In the fine grazing farm at Creslow, near Aylesbury, so long occupied by the celebrated grazier, the late Mr. Westcar, there is one of the pastures which contains upwards of three hundred acres. As there is in it a very good supply of water, there cannot be a doubt but that it might be advantageously subdivided, for in all large pastures, some parts of them will produce a much sweeter herbage than others ; the beasts, therefore, in any thing like a grass-producing year, will graze some parts of the pasture very close to the ground, and others scarcely touch ; which is generally mown, but which can never be made but into a very inferior kind of hay. I have heard some graziers talk of leaving grass for winter and spring keep ; this practice I have ever thought bad ; the grass of all pastures should be well bottomed before spring. Where the grass has decayed on the ground, a less quantity will shoot up in the spring, and that will have so sour a taste, that fattening beasts will not touch it. The owner of the Creslow farm is Lord Clifford, who, I understand, feels, as many other noblemen probably would, if they possessed such a property, that as there is not another so large and fine a grazing pasture in England, likes it to remain as it is. It is advantageous to graze sheep with beasts, but the larger and more valuable the beasts, the smaller should be the proportionate number of sheep. If there should be a carriage-road in a sheep-pasture, or even a much-used foot-path, the sheep ought to be folded, to prevent their leaving their manure on it. In many pastures they are apt to lie every night on the same part, and there leave their dung : in such case, folding is judicious. Cow-clotts should be gathered up in the spring and summer : in the winter they should be knocked about. A pasture cannot be a good one for beasts, that has not a good supply of water. Unless unusually hot, sheep, in summer, will do very well without any, if the grass is of sufficient length to retain, for some time in the morning, the dews of the evening. There should be no water in the field where ewes are kept in lambing time.

IRRIGATION.—Were I to enter fully into this subject, it would occupy more space than I can allot to it in this little work. Irrigating grass land, in a proper manner, answers the purpose of manuring, and in some respects, for a time, better, for it will earlier bring forward spring grass, which is always very valuable, and when eaten off, the land may be again irrigated to produce a good crop for hay, and thus make the grass land enrich the arable. The most effective and productive irrigation is in meadow land, where the brook can, for the necessary time, be turned out of its course. The advantages of irrigation are now so well known, it is surprising that every occupier of grass land who can at little expense irrigate, does not. I have observed in travelling through hilly countries, that very few opportunities are lost of conducting the rain water from the ditches and roads to go over adjoining grass land, and thus at a very trifling expense greatly increase its produce. I have seen abundance of grass produced from irrigation with spring water; but the water of brooks, and the soft rain foul water from ditches and the public roads, must afford more nourishment to the land, and be less likely to produce aquatic grasses than hard spring water. Sheep cannot be safely kept in irrigated pastures from the beginning of April till after the first frost in winter.

FARMING ACCOMPTS.—There are many different useful accompt books to be had, with all the requisite printed columns. These books are quite necessary if a bailiff is kept, but where the occupier pays and receives all, and superintends what is going on, it is giving himself unnecessary trouble to make the various entries which these books point out. If he sees his labourers at work, it is of no use to enter in a book what each is doing. My farming accompts have ever been kept in the way I will state, and perhaps I could not keep them in a more satisfactory manner. I use for my cash book what the stationers call a common 8vo. book, with lines for date, and £. s. d. In this I enter all payments and receipts, whether for the farm or other purposes, and balance it weekly, to guard against omissions of entries. At the end of the month I fold a quarter of a sheet of post writing paper, till it forms columns

to figure in all the payments in the cash book under these heads—Labour—Sundries—Taxes—Private Expenses. In another book, which stationers call long folio, is the annual account, thus, ruling the necessary lines to make the following columns, beginning each year's account on the 1st May :

ON FARMING ACCOUNT.

Date.	Private. Expenses.			Sundries.			Taxes.			Labour.		
	£.	s.	d.	£.	s.	d.	£.	s.	d.	£.	s.	d.
May....												
June ...												

Each column added up at the end of the year gives the annual amount paid on these different accounts. The value of the seed corn, whether bought, or the produce of the farm, must be added, and these will form all the outgoings. To which of course must be added, the rent, and interest of capital employed. On the other side of this account is stated the quantities and gross amount sold, for Wheat, Barley, and every other kind of grain which the farm has produced. Also, the profit derived from Beasts, Sheep, Pigs, Poultry, and Butter; ascertained by opening a separate account for all stock, valuing those on hand on the 1st May; entering the amount of those sold, and also entering, at the end of the year, the then value of those unsold.

The account at the end of the year, on the 1st May will stand thus :—

OUT-GOINGS.				IN-COMINGS.			
	£.	s.	d.		£.	s.	d.
Paid for Labour	—	—	—	Wheat—quarters	—	—	—
— Sundries	—	—	—	Barley—ditto	—	—	—
— Taxes	—	—	—	Oats—ditto	—	—	—
Clover and other seeds	—	—	—	Beans—ditto	—	—	—
Seed corn	—	—	—	Profit on beasts	—	—	—
Interest of capital	—	—	—	Ditto on sheep	—	—	—
Insurance	—	—	—	Ditto on pigs	—	—	—
Rent	—	—	—	Butter	—	—	—
				Poultry	—	—	—

Horses should be valued each year; profit, if any, entered on the other side—if loss, on this.

Of course, so much as the amount on this side exceeds the other, is the profit.

PROPOSALS FOR ESTIMATING THE RENT OF LAND BY THE AVERAGE PRICE OF WHEAT.—It has lately been remarked in the public papers, that some system of a fluctuating scale of amount of rent, to be regulated by the price of corn, was much wanted to create a good understanding between landlords and tenants. Two different plans for estimating rent in this manner, I here offer for public consideration. The amount of rent of arable land, must of course be estimated, by the quantity and value of the corn which it is likely to produce with fair cultivation, taking into consideration also, the following particulars:—whether it has on it all necessary buildings; the annual amount that it pays for parochial rates; the distance that the land is from the market where its produce is to be sold; and what price per bushel may be reasonably expected for wheat—which, in the long run, governs the price of all grain, and of meat too. Therefore, as the price of wheat rises or falls, so does the actual value of the rent of land. The value of rent for the different qualities of land will vary from the worth of two to seven bushels per acre—the regulating price to be annually that which has been the average price of the market agreed on; or the annual average returned price of the country for the past year. Supposing it should be 6s. 6d. per bushel, the rent of the different qualities of land may be thus calculated:—

Very poor land	2 bushels..	13s. 0d. per acre
Poor	3 ditto	19s. 6d.
Fair quality	4 ditto	26s. 0d.
Good	5 ditto	32s. 6d.
Very good	6 ditto	39s. 0d.
Extraordinarily good..	7 ditto	45s. 6d.

The intermediate qualities may be raised by the corresponding fractional parts of a bushel: thus—a medium quality, between fair quality and good, $4\frac{1}{2}$ bushels, 29s. 3d. per acre; approaching nearer to good, $4\frac{3}{4}$ bushels, 31s. per acre. Some may think this method of estimating the rent of land, complicated and troublesome, but in reality it is neither the one nor the other, and I believe it to be quite fair between landlord and tenant. No one can foretel what may be the average price of wheat for five or seven years to come. After giving this subject all the consideration in my

power, my opinion is, that provided the country is not involved in war, fifty-two shillings per quarter is the highest average price that can fairly be expected.

I propose, therefore to landlords, that they should have the rents of their farms, whether all arable, or part arable and part grass land, estimated to correspond with the price of wheat at 52s. per quarter; but that the amount of rent paid should, in the following manner, depend on the price of wheat. For every two shillings per quarter which the annual average returned price of wheat, up to the 1st of March in each year, should fall below fifty-two shillings per quarter, $2\frac{1}{2}$ per cent. should be deducted from the estimated rent. For every two shillings and sixpence per quarter, which the annual average price should exceed fifty-two shillings, $2\frac{1}{2}$ per cent. should be added to the estimated rent. I am quite aware that numerous objections are likely to be made to this proposal; but I am fully persuaded they may all of them be fairly and reasonably answered. It is probable some tenants may say that they get a high price for wheat from having a deficient quantity. That might, in some year, possibly be the case; but although, in other years, they may have a low price from having an abundant quantity, I make some allowance in the scale for a deficiency of produce.

The increase of rent from a higher price of wheat, would not be all gain to the landlord, for he would have to pay more for the food consumed in his family. With this plan, the more rent tenants had to pay, the better would be the times for them. Some may think the price of barley should be taken into account. This is quite unnecessary: the price of wheat will alone (take one time with another), fairly answer as to the amount of rent. On clay-land farms, nearly the whole of the rents must be obtained by the receipts from the sale of wheat. As to oats, I decidedly object to the returned price of them being taken into account in a valuation of rent; for a great portion of them is sold by factors, who have kept them some considerable time, at much waste and expense; the prices, therefore, returned, of oats, are much above the price which the grower gets.

It was my opinion, thirty years ago, and it now remains

unaltered, that the price of wheat, in the main, will ever be the standard of worth of all the necessities, comforts, and luxuries of life : that no class of the people will ever get (excepting for some short time) more or less of them from the high or low price of wheat ; for the wages of the labouring classes must be brought to correspond with such high or low price. I feel convinced that the present corn laws will keep the prices of wheat as steady as any that can be devised ; but no laws can prevent the price being, at some particular times, too high for the consumers, and at others, too low for the growers. Without any laws, the price would generally be lower than it could possibly be produced for in this country : but at times there can be no doubt but that it would be enormously high. A high price of meat may tend to raise the price of wheat, for when meat is high, and corn low, much of it is turned into meat. This was the case last February, wheat being then so low priced, and found to so well answer in stall feeding, a considerable quantity was so consumed : the markets were therefore less abundantly supplied, and consequently the price rose. My plan is not calculated for grazing farms : there needs not such frequent variable rents on these. If the grazier's fat cattle sell for a low price, he will be able to buy lean cattle at a low price. The grazier's losses can never be so ruinous as the farmers may be. Every landlord must know the price of meat, and therefore can form a pretty correct idea whether the rent of his grazing land ought to be reduced or increased.

LEASES.—Those who become tenants of poor land, out of condition, consequently needing capital being expended on it, would be unwise if they did not require a lease : for although they might have full confidence in their landlord, yet as life is uncertain, tenants ought, under any change of the ownership of the land, to be secured reaping the benefit arising from their expenditure of capital. But of farms of good land, in good condition, and therefore only wanting the common expenses of cultivation, tenants cannot reasonably expect to have leases. Those entered into a great many years ago, proved very advantageous to the tenants ; those entered into about twenty years ago, mostly proved

ruinous to them. Leases now entered into, according to my proposition, with a variable amount of rent, regulated by the price of wheat, could not prove injurious to either landlord or tenant, were the term either long or short. Were leases entered into on the terms I propose, it probably would not be an uncommon occurrence to hear, as I heard, a tenant who had recently entered on a large farm of poor land, say to his landlord, Mr. Coke, "My best bank, Sir, for the capital I possess, is my farm, a part of your estate."

Some years ago, a great portion of the stewards of landed proprietors were composed of lawyers, land-surveyors, and others, who knew little or nothing of the real quality of land, or the proper cultivation of it. All the object in view of such stewards was to increase the rental of their employers, on which increase it was then a common practice for them to receive a commission; so that industrious tenants under their control, whose farms appeared neat, were liable to have their rents raised; and the crafty, or negligent, whose farms appeared unsightly, theirs not raised, but perhaps lowered, which is exactly the reverse of what just stewards between landlords and tenants, ought at all times to do.

My proposition for a Commutation of Tithes was in the same mode as in estimating rents, by the value of a determinate number of bushels of wheat, and I still think that a fairer plan could not have been adopted; every farm in the parish being valued according to the quality of the land, and not according to its state of cultivation. Nor were the valuers to be influenced by any amount that might have been paid as compensation. Not to disturb any existing agreement, but an estimate to be given to the land-owner and tithe-owner of the value to be paid for commutation, when such agreement ceases; the amount fluctuating with the average price of wheat. With this plan of commutation, it would not have been necessary to have a permanent Board of Commissioners.

It has often been asserted in the House of Commons, and elsewhere, that permanent low prices of corn would not affect the farmers—that landlords only would be affected by it, for they must lower their rents. This, I trust I shall be able to prove, by the following statement, to be a most mistaken notion.

A summary calculation of the value of the produce of Farms, of different descriptions of land, with Wheat at seven, six, and five shillings per bushel; the prices of other grain in proportion; the profit arising from Cattle, Sheep, Pigs, and Poultry; the amount of Hens and Expenses; and the Occupiers' Incomes. Also supposing that each farm was titheable, the amount to be paid per acre and per annum according to my mode of estimating the value of Tithes, which proves to be, on arable land, about one-fifth of the amount of a fair rent. As I believe that my way of estimating the value of tithes brings them to a rather less amount than they justly ought to be, I think five per cent. might be added to my estimation on good arable land.

Number of acres, tithe-free.	Arable.	Pasture.	Quality.	Wheat at 7s. per bushel.					Wheat at 6s. per bushel.					Wheat at 5s. per bushel.					Occupier's loss of income, with re- duction of rent wheat being reduced from 7s. to 5s. per bushel.	If the farms were titheable, and wheat 6s. per bushel, the tithe would be
				Rent per acre.	Whole Rent.	Value of produce & profit of stock	Amount of Expense.	Occupier's Income.	Rent per acre.	Amount of Rent.	Value of produce & profit of stock	Expenses.	Occupier's Income.	Rent per acre.	Amount of rent.	Value of produce & profit of stock	Expenses.	Occupier's Income.		
200	150	50	Poor Clay	s. d. £.	s. £.	s. £.	s. £.	s. £.	s. d. £.	s. £.	s. £.	s. £.	s. £.	s. £.	s. £.	s. £.	s. d. £.			
210	200	10	Poor Sand	14 0 140	0 703 450	0 113	9 4 93	7 612 407	0 111	4 8 46	13 515	0 365	100	13	2 1 13	21 5	5			
200	180	20	Clay	15 0 157	10 756 415	10 183	10 0 105	0 654 382	0 167	5 0 52	10 552	10 355	145	38	2 4 4	24 10	0			
200	180	20	Sand	25 0 250	0 858 470	0 138	18 9 187	10 748 428	10 133	12 6 125	0 629	0 395	109	29	4 0 4	40 0	0			
200	160	40	Good Clay	25 0 250	0 1006 530	0 226	18 9 187	10 877 487	10 202	12 2 125	0 748	0 451	170	66	4 0 4	40 0	0			
200	160	40	Good Tur- nip Land	31 6 315	0 1079 520	0 244	27 0 270	0 943 480	0 193	22 6 225	0 800	0 445	130	114	4 11 4	49 4	4			
200	180	20	Good Tur- nip Land	35 0 350	0 1102 525	0 227	30 0 300	0 962 483	0 181	25 0 250	0 810	0 440	120	107	5 9 5	57 10	10			
200	Same farm		(4-course system) Superior turnip land.	35 0 350	0 1193 545	0 298	30 0 300	0 1037 502	0 235	25 0 250	0 871	0 465	156	142	5 9 5	57 10	10			
200	180	20	Both good turnip land.	42 0 420	0 1309 555	0 334	36 0 360	0 1138 512	0 266	30 0 300	0 967	0 478	190	144	6 10 6	68 15	15			
200	100	100	Both good turnip land.				39 0 390	0 980 290	0 300				300		6 4 6	63 7	7			
200		200	good quality				40 0 400	0 900 200	0 300				300		5 0 5	50 0	0			

In the above statement, the whole amount of value of the produce of each farm is calculated ; therefore, if the occupiers consume in their families, corn or meat, or corn by any other horses than one to ride to market, or cart horses, the value of such corn or meat must be considered as part of their incomes ; which, according to my calculations, will be, on poor clay farms (with my lowest valuation of produce) not more than sufficient to feed, and plainly clothe, their families, or to give their children any thing beyond the most homely education. The occupiers of good turnip, or good grazing land, need not despair of getting, with industry, and good management, and good judgment of stock, a comfortable maintenance ; for the demand for corn and meat (both of which they can produce at less expense than the occupiers of poor land), must increase with our increasing population. If a farmer were to ask his sons what line of life they would like best, the chance is, even if there were half a dozen, or more, that they would all answer, farming. It is, however, the duty of the fathers to be satisfied, in their minds, that their sons are likely to turn out steady and industrious, before they consent to their being brought up in that line, for to those who do not turn out so, there is, in the life of a farmer, too many temptations to pleasure. Farmers should also consider what prospect they have of getting farms for their sons, before they bring them up as farmers.

Rail-roads will certainly cause a change in the value of land, in different parts of the kingdom. The gross value of the land, five miles round London, will, I conceive, be lessened, and the land, fifteen or twenty miles from it, that lies near a rail-road, increased in value, not only from the facility of getting its produce to market, but for its convenience of residence for persons who have daily business to transact in London. Good feeding grass land, from forty to sixty miles from London, has hitherto been of much greater value than the same description of land, a hundred and twenty miles from it ; but if the sheep and cattle fed on it can be conveyed there at the small expense it is said they will be, the distant land will be increased in value, and consequently the nearer, somewhat lessened.

The produce of a poor clay arable land farm, and the

profit of the stock kept upon it, ought to amount to seven rents, as thus :—one for the landlord ; four and a quarter, expenses ; and one and three quarters for the tenant's maintenance. On a poor sand farm, where the expenses are less, six and a quarter will do. On fair clay land, four and a quarter : one, landlord ; two and a quarter, expenses ; one, tenant. On good turnip land, three and a half ; one, landlord ; one and three quarters, expenses ; three quarters, tenant. Superior grazing land, two and a quarter : one, landlord ; half, expenses ; three quarters, tenant. There is a difference of opinion as to the size that farms ought to be : most, who consider the question as it regards the public interest, are against large farms ; believing that there is not a proportionably equal number of labourers kept on large farms as there is on moderate-sized ones ; besides which, it is argued that two farmers' families might be maintained where there is only one. Perhaps there are not, on the generality of farms of five hundred acres, double the number of labourers employed as there are on farms of two hundred and fifty acres. It is certainly in the power of a good farmer to well manage, at less expense per acre, two hundred and fifty acres of good arable land, than he could one hundred and fifty acres, of the same quality. As the question regards landlords and tenants, the size of farms must depend on the nature of the soils, the parts of the country in which the farms are situated, and the competency of the tenants ; for landlords cannot be expected to let large farms to tenants with small capital. When wheat, the chief dependence of clay land farmers to pay their rents, was selling at eight-and-thirty shillings per quarter, as it had been for a considerable time previous to about the middle of February, 1836, such farmers were then in a truly distressed state ; but not so the turnip-land farmers, for barley, oats, mutton, and wool, were then selling at fair prices.

There should always, at harvest, be a good stock of wheat in the farmers' hands. In former times, there always was : but of late, those farmers who could keep part of their produce have not, for from the violent speeches against the corn laws, so continually made in Parliament by the Honorable Member for Middlesex, they do not feel

certain of the present corn laws being retained. Their fears, I hope, are groundless, for with the increased production, from the improved cultivation of the land, in England and Scotland, and the expected improvement in Ireland, I trust Parliament will believe that henceforth there will be no more necessity to import foreign wheat into the British dominions, than to import foreign children. The Honorable Member for Middlesex is very peculiar in many of his notions; he is reported to have said that which, I should hope, he could not find in the six hundred members of the House of Commons, six, to agree with him, "that England would be in as flourishing a state as it now is, if it did not produce one single bushel of corn." It appears that great men may greatly differ in opinion on subjects of the greatest importance, for Dr. Johnson says, "Agriculture not only gives riches to a nation, but the only riches she can call her own."

Having the opportunity, in this second edition, I make a few brief observations on the able "Remarks on the present state of Agriculture," by Charles Shaw Lefevre, Esq. in a letter, addressed to his constituents of North Hampshire. In consequence of the distress which prevailed, it was absolutely due to the agricultural interest to have a Committee of the House of Commons appointed, to inquire into the causes of the distress, and to report, from the evidence which came before them, their recommendations for relief. That the Committee should not have known what to recommend, and therefore should have made no report, could not have surprised any able-minded agriculturist, whose thoughts had been directed to the subject. Mr. Lefevre says he is decidedly in favor of a fixed duty on foreign corn, instead of the present duty, which is fluctuating; but should this alteration not take place, he yields to the suggestion of a gradual reduction in the present scale of duties on importation. This suggestion, it appears, comes from dealers in foreign corn; those who, till within the last few years, carried on a lucrative concern in that article. May it not reasonably be suspected, that such persons may be desirous of regaining their now nearly lost trade? During the last twenty years, I have read so much as to the price that

wheat can be grown for on the Continent—on fluctuating duties, and on fixed duties, &c. &c.,—that I mean to read no more on such subjects. After thirty years practical pursuit of agricultural affairs, accompanied by attentive consideration of all matters relating to them—after all I have read—after all the arguments I have heard—I am decidedly against any change in the present corn laws, conscientiously believing them to be most just and fair, between the growers and consumers of corn. British occupiers of land, with less protection from foreign importation, could not support the labouring agricultural population, pay taxes, and pay their landlords such moderate and fair rents as they are justified in taking. Why a reduction of the duty on malt is to be mixed up with the corn laws, I cannot comprehend. 'Tis true that farmers (from the necessity of giving beer to their labourers), would be more benefited by a reduction of the duty on malt than shopkeepers and many others; but as the benefit which the farmers might derive, would not be at the cost of any other class of the people, I do not see why any part of the protection which the present corn laws afford, should be taken from them, on account of any little extra advantage which they might derive from a reduction of the duty on malt. Mr. Lefevre says, the present corn laws have been a delusion. I cannot answer for what they may have been to others, to me they have been no delusion. The Legislature, at the time of their enactment, contemplated they would be a protection to 60s. per quarter, for wheat; I then told persons of distinction, that I calculated they were only to 56s. The late very low price was no proof of delusion; for in all commodities, if the supply exceeds the demand, as it did last year in wheat, prices must fall. Many most ingenious attacks are continually made on the corn laws by most able writers, employed to fill up the pages of newspapers, and many apparently plausible arguments are brought forward for their repeal. It is said that our ports ought to be open, free of duty, to foreign corn and manufactured foreign goods. I ask, in answer to this, will foreign ports be thus open to British manufactured goods? It is well known that England possesses such vast resources within itself for the purposes of manu-

facture, that all goods, of any importance, can be manufactured in this country (with the present corn laws), at a cheaper rate than in any other part of the world : English manufacturers, therefore, fear no foreign competition. When it can be proved that it is possible to produce corn at as low a price in this country as on the Continent, then, but not till then, shall I become one of the numerous agriculturists whom Mr. Lefevre wishes may be convinced, "that the best thing which the Legislature can do for them, is to free their trade from the shackles imposed upon it by impolitic laws." I can truly say that it is not on selfish grounds that I wish to retain the present corn laws, but for the welfare of the whole rural population, which forms so great a portion of the British nation. As the mercantile, manufacturing, and trading interests are most powerful in the House of Commons, and united against all corn laws, it would be the height of folly, should there be any disunion amongst the supporters of the agricultural interest, on account of a difference of opinion as to which is best, a fixed or a fluctuating duty on foreign corn. No change in the present corn laws, in my opinion, ought to be attempted, for I am well convinced, should any take place, that it would be disadvantageous to the agricultural interest.

ON PRICES.—No one can, with any degree of certainty, foretel what will be the future price of either corn or meat. Whenever it can be ascertained that there is a pretty general belief throughout the country, that corn, or meat, at a specified time, is to be high priced, I think it advisable to sell before that time arrives ; for from the generality of persons acting upon this expectation, they prevent the rise of price at such time. Before an occupier of land fixes the price of any thing he has to sell, he should previously inform himself what is the real market price of that description of produce which he has to dispose of ; for if he asks the price such was worth, ten days, a week, or often only a few days, before, he will be liable, either to sell under the market price, or to ask so much above it as to lose a good customer. Not having convenience to keep corn, when threshed, it has been my custom to sell, on its being winnowed up, and, taking one year

with another, I have probably obtained as good prices (taking into account waste and expenses), as those who had the convenience of keeping. All large farmers, however, ought to have a good granary.* My usual practice has been to have as much as I could of wheat put in, but the price of wheat, last harvest, being so low, and the price of barley being good, I filled my barn with barley to sell first, and bought seed wheat; this arrangement turned out profitable to me. It is only a portion of the stall-feeders, and the occupiers of good turnip land, that are benefited by a great rise in the price of meat, in the spring. The graziers of this and adjoining counties suffer, from their being consequently obliged to purchase at higher prices, for their summer's grazing. Since the publication of the first edition, times have greatly improved for all occupiers of land, but particularly for those of a poor clay, who had, for a considerable time, been in a most distressed state; but all will now, I trust, partake of that prosperity which has for some time past been generally felt throughout the country, excepting by those engaged in agriculture.

ON THE IMPORTATION OF IRISH PRODUCE.—Many of the English occupiers of land have looked with a jealous eye on the great importation of Irish agricultural produce. Ireland has as much right to send its surplus agricultural produce to any part of England as Scotland has; or, as one part of England has to send any of its produce to another part, where it is likely to fetch a better price. The Irish agricultural population ought to excite the pity, not the jealousy, of the English; for in the comforts of a civilised nation, as to food, clothing, contentment, and good order (the consequence of long-continued industrious habits), the agricultural population of Ireland could have as little resembled the English had they been two thousand miles asunder, and Ireland been no part of the British Empire. I have ever looked on an Irishman in the same light as a Yorkshireman, or a man of any other county. I therefore was much surprised to hear

* Before beginning to cart grain at harvest, it is well to consider which is the more likely to be in the greatest demand after harvest, wheat or barley, to determine with which the barn shall be filled.

that a Peer of the Realm should declare, in the House of Lords, that the Irish people were aliens—of course, therefore, had not the same claims to the protection of the British government, as the English people had. The term alien, however, might have been merely an unguarded expression, arising out of the heat of debate. I never was in Ireland, but from all I have heard, it appears that the land, take it altogether, is capable of being made to produce, per acre, as much human food as any land on the face of the globe. The people of a country with such resources within itself, ought to be as comfortable, happy, and contented, as any people in the whole world. The present condition of a great portion of the Irish population is most lamentable, but how it is to be amended, those only who well know the country, and the people, can form any just idea.

Taking into consideration the large supplies that must come from Ireland, even if the condition of the lower orders should be so improved that they shall consume double the quantity of wheat they now do (for, whilst their condition is improving, they will so improve the cultivation of the land, as greatly to increase its produce)—the increased supply from the effective draining of the fens of this country—the lessening the demand for wheat, from the labourers' allotment system (which has increased the consumption of potatoes in labourers' families, and decreased the consumption of bread, besides which, the general consumption of potatoes has of late years been much increased, from their being of a better and more nutritious quality)—under all these circumstances, without there should be in some year a general failure of the crop, or the country be involved in war, or until there is a very great increase of the population, I feel persuaded that the future average price of wheat in this country, with the present corn laws, will not exceed fifty-two shillings per quarter, with other grain at corresponding prices. As the burthens on agriculture have been lightened, active and industrious tenants, renting under liberal landlords, will be able, with such prices, to obtain decent maintenance for themselves and their families, but not at less: for labour, and other expenses of cultivation in this country, cannot be reduced accordingly.

Very low prices for agricultural produce will certainly be beneficial to some classes ; but the question is, will such low prices, with our high taxation, be for the general good : I think not : for the lower the value of the produce of the soil, the higher, in reality, it makes the amount of the national debt, and thus adds to the weight of taxation upon that class which pays so great a portion of the interest of it. If the incomes of landlords were to be so reduced by their rents being lowered to correspond with wheat at five shillings per bushel, and tenants not to be able to get more than a bare subsistence, the manufacturers must find the demand for their goods very materially lessened. Whether, with such low prices of produce, and consequently such a reduced circulation of money, a sufficient amount of taxes could be raised to continue paying, for any length of time, the full amount of interest of our enormous national debt, I leave to the consideration of those who are competent to form a more correct opinion on the subject than I am.

Some Newspapers are continually giving statements of the comparative prices of wheat, in England and on the Continent. It is not the price of food, in any country, that proves whether it is cheap or dear, the proof is the relative value which the wages of the labouring classes bear to it. The prosperity of a country, the contentment, comfort, and happiness of its labouring classes, are not to be estimated by the low price of food. Most of the London papers annually inform their readers, that the crops throughout the country are most abundant. Providence has certainly been kind to this country, but abundant crops are not produced every year. The newspaper writers no doubt suppose (but are most egregiously mistaken), that by their holding it forth that there is great abundance, it may have the effect of keeping down prices.

I attended the great agricultural meeting, in London, on the 15th December, 1835, where, as I expected, I heard nothing satisfactory how agriculture could be relieved by any legislative enactments. The real cause of the agricultural distress was, from there having been more than the usual quantity sown, and more than an average produce for three years, wheat was selling at a less price than it

could be grown for. The government had no more power to raise the price of wheat in Mark Lane for the benefit of farmers, than it had to raise or fall the tide out of its usual course at London Bridge for the benefit of merchants.

I do not pretend to understand the Currency question ; but, whether Peel's Bill, at the time, was a wise or unwise measure, it must be quite out of the question to think of going back again to a paper circulation. It would perhaps raise the price of agricultural produce, but probably without raising its real value. There is also this important consideration ; the present protection from importation would not, with a paper currency, be high enough ; a higher, under any circumstances whatever, can never be expected.

I hope, when the finances of the country will admit of it, that the tax on malt will be taken off, and an additional duty laid on gin to prevent its being cheaper than it is at present. It would be worth some little sacrifice of revenue to keep the agricultural population from becoming so lamentably demoralized as a great part of the population of most manufacturing towns are. It has perhaps been too long the system of the government to do all in its power to collect a large amount of excise, without considering, or at least attending to, the pernicious consequences arising from the lower orders consuming, to great excess, ardent spirits. Many farmers, who were advocates for the malt-tax being taken off, became not so ; they wanted great relief—this they thought would afford them but little. In my opinion they underrate the relief it would afford ; for, it is not only the sum they would save in payment of duty, but there is no doubt that there would be much more private brewing, a greater quantity of malt consumed, and consequently an increased demand for barley. Small brewhouses might then be fitted up in villages, to be let out for brewing, at so much per bushel of malt. Provident labourers might then be enabled to enjoy the great comfort of having, at a moderate cost, a little good wholesome beer at home, and thus be kept from that demoralizing influence that is always going on in beer-shops. Beer drunk at home by a labouring man, ought to be considered a necessary, and ought not to be taxed ; nor the beer which

the farmer gives to his labourers. If the keepers of beer-shops were prohibited from selling beer to be drunk on the premises, and only paid a nominal sum for their licence, they could undersell the public-house keepers, who pay some pounds for a licence, besides being at the expense of providing accommodation for their customers. Those who take an interest, and look into the dwellings of their village poor, should urge the labourers' wives to have their cottages look as tidy and comfortable as possible, when their husbands return home from their day's work. From the uncomfortable appearance of their homes, many a man goes to the beer-shop, with the intention of spending only the cost of a pint, but finding a comfortable room, a good fire, and companions, is led on to spend money which should have bought meat.

From the infamous system of paying the men employed on the railroads and other public works, at a beer-shop, at a late hour on a Saturday night, most of them are led, by the example of others, to spend a great part of their weekly earnings; so that few of the married men have much left to send or bring home to their wives and families; and still fewer of the single men save any part of the high wages they have been receiving; and most of the single and married become sadly demoralized. If every person paying labourers' wages on the premises of a public-house or beer-shop, were liable to a fine for so doing, and the labourers be entitled, if they made the claim, to receive over again wages so paid, this would check this most iniquitous practice. There is no doubt but that most of the piece-takers of these works, who hire men to help them to perform their contracts, are connected with the keepers of beer-shops, and therefore do all in their power to get money spent in them.

Agriculture would be benefited if landowners would live more in the country, instead of living and spending the chief part of their incomes in our overgrown metropolis, or fashionable watering places; and if they would not fancy that every thing they want in the country, except bread and meat, must (to be good) come from London. Were there more of the Old English Gentlemen now in existence, there would be more of the old English contented peasantry.

I am always glad to hear of landed proprietors occupying a little of their land; this gives an additional interest to country residence. Farmers, five-and-twenty years ago, were a little jealous of this; they thought it enabled their landlords to know too much. There might be something in this, then, for at that time there were, in farming, secrets worth knowing, and which the farmers might think worth keeping to themselves; but now there are none. Landlords who from experience know the necessary great expenses of farming, are much more likely to be liberal to their tenants, than those who know nothing of farming, and are not aware of these expenses, and who, therefore, believe their land to be worth a greater rent than it actually and fairly is.

The habits of village poor are more orderly where there is an influential good moral person constantly residing amongst them, whose displeasure they are fearful of incurring. Where there is such a person in a village, and there is also a pious, pains-taking officiating minister, although there may be, from the defect of human nature, some bad individuals, it is pretty certain that the chief part of the poor of such a village will be orderly, good people. Many large sums are spent by the wealthy in London, which afford only momentary, if any, real gratification, to those for whom they have been expended; the amounts of such expenditure get into channels that do little or no good to the community. Were these same amounts circulated in alms, amongst the poor of the parishes from whence these wealthy persons derive their incomes, this would be productive of infinite good in the country population, and be a lasting source of gratifying feelings to those who so appropriated a portion of their wealth. The poor receive relief by alms, with gratitude—parish relief with feelings only of right. As the generality of farmers have, for many years past, been paying distressingly large sums for the support of the poor, and have seen that all has been received without the least idea of thankfulness, it cannot be surprising if they should not have taken that interest in their village poor, which they otherwise would have done. But now, when in most parishes, the poor-rates are reduced to about one-half, and it is believed a better spirit exists amongst the poor, it may be expected that farmers and their wives

will cheerfully look into the condition of their poor neighbours, and render them all the little acts of kindness in their power. Linen Clubs, well managed, and aided by annual subscriptions, from owners or occupiers of the land, have been found to do much good. Whether it is common in villages I know not, but in this, and in many others in the county where the cottages belong to different persons, most of them have but one sleeping room, so that grown-up sons and daughters, father and mother, all inhabit the same room. Should this be the case where the cottages belong to those who own the whole parish, on this fact being known, such persons, it is hoped, would take the necessary steps to remedy so great an evil. Most agricultural labourers are now accommodated with small allotments of land; to those who are honest and industrious, this is a benefit, without the probability of injury arising to any of the farmers of the parish. Such allotments ought not to be larger than the labourer and his family can cultivate, without interfering with his regular employment.

The preserving and so greatly increasing the number of pheasants, the game the most tempting and easy to poach, has greatly tended to the increase of crime amongst agricultural labourers. They sally forth, well primed, from the beer shop, on their midnight battues, in such numbers and determination as generally to set at defiance all force sent against them, and the game being in abundance, they are pretty certain of obtaining from the sale of one night's poaching, enough to be able to live, without doing any work, for many days after; besides this, when once a villager becomes a poacher, it seldom occurs that he is ever afterwards an orderly and industrious labourer. Large preserves of game, in thinly populated and insulated parts of the country, a great distance from, and with little traffic, with our great consuming metropolis, may be kept up without those bad consequences arising from poaching, which are sure to take place where game is preserved in populous parts. A great part of the amusement in shooting appears to me to be in the pursuit of the game, and in observing the hunting of well broken-in dogs. In a battue there is none of this. Country gentlemen who have not a preserve of pheasants, and have visiting friends, fond of

battueing, may, I think, for a morning's amusement, give them a tolerably good imitation of a battue by taking them into a tenant's farm-yard that is well-stocked with poultry.

If landlords would request their tenants to take farming men and boys into their families as they formerly used, it would bring up the rising generation of the peasantry to more orderly habits, and in a very great degree prevent that great source of evil amongst them, improvident early marriages. The youth of agricultural parishes have of late years been under no controul after six o'clock in the evening; consequently, from an unrestricted intercourse with the young females of the parish, the greater part of them have been obliged to marry; and thus, in the agricultural population, the chief part of the marriages, of late years, has not been of men and women, but of boys and girls, who, relying on their parish funds, never had one thought how themselves and the children they might have, were to be maintained. The Poor Law Amendment Act, which, in its operation, has exceeded the most sanguine expectations, will greatly correct this evil, without pressing in any manner hard on the really indigent poor. The poor-rates of the populous agricultural parish in which I reside, have been reduced nearly one-half. My opinions on Poor-laws are the same I publicly expressed, more than twenty years ago: which were, that all persons in the kingdom who possessed property should be answerable to those who had none; that if, from age or infirmity, they were incapable of working for their livelihood, they should have relief from their parishes; and that those who were capable—if they could satisfy the overseers that it had not been in their power to procure work—their parish should be bound to find it for them, or to give them such relief as would keep them from starving; that if the laws did not afford them this protection, they could not be justly called upon to uphold the laws by serving in the militia, or in any other manner. The act of Elizabeth gave them this protection. The Poor Law Amendment Act has not in any way lessened it; its enactment was only for the purpose of correcting the abuses which had crept into the Poor Laws, and thus preventing idle and improvident labourers from being as well off as the hard-working and provident.

So ill-managed have been the affairs of the parish I reside in, that, in some parts of the year, from five to fifteen, or more, pounds weekly, have been paid to labourers doing no work whatever ; for whether they had, or had not, endeavoured to obtain work, they had only to go to the Assistant Overseer by seven o'clock in the morning, to have their names entered, to receive the Justices' allowance for labourers out of employ. Many, therefore, who seldom worked but when they could get high wages by working by the great, had more money coming in, during the course of the year, than those who worked every day.

Previous to the Poor Law Amendment Act, I was a strenuous advocate for the Labour Rate system, which appears not now needed, but possibly may be, when all the contemplated public works are executed, and the demand for labour lessened, or should a case like the following occur. The time may probably come, although at a distant period, that in some long frost, large bodies of agricultural labourers, of different parishes, may apply to their respective Boards of Guardians for employment or relief. It would therefore be advisable previously to deliberate on what it would be right to do in such a case, instead of leaving the consideration of it to the emergency of the occasion, when it is doubtful whether the wisest measures would be adopted ; besides which, each board might be liable to act differently.

Men who have been receiving more than ordinary wages, ought, we know, to have put by enough to provide themselves and their families with necessaries for any short time that they may be out of work ; but should they not have been so provident as they ought to have been, means must be provided to keep them from starving. The best arrangement that could be made on such an occasion, would be for the occupiers of the land of the different parishes, each to take into his employ (perhaps at something under the wages that he gives to his other men), his share of those men belonging to the parish, according to the number of acres of his farm. But this, probably in most cases, would not be agreed to, many occupiers never having, in the short days of winter, one labourer more than they can possibly do without, whilst others employ the same number through-

out the year, those having their full share of the labourers of the parish, would not be willing to increase their number.

It seems to be thought that out-door relief to able-bodied labourers should no longer be given; but it surely never could have been contemplated to put such a number of them as I have alluded to, in the workhouse, from a temporary want of employment. From the distance that some would have to go, they could not be set to work, all at the same place, under the superintendence of a person appointed by the Board of Guardians. Nor could those belonging to Moulton (and probably in other parishes), be employed in raising stones and repairing the parish roads, for there are always in winter many more so employed than are necessary, consisting of men beyond the age of what is called able-bodied. Were the Board of Guardians authorised to allow, for the necessary time, the establishment of the Labour Rate, every man would get into employment at such wages as his labour was worth.

I am a Guardian in one of the Unions in this county, and can bear testimony to the extraordinary well working of the Poor Law Amendment Act. When attending the meetings it has often struck my mind with surprise, that the Act should, without the necessity of alteration, appear fully to meet most of the various cases brought before us, and I can, as a practical farmer, contradict in the most positive terms, the assertion that has so often been made, that it tends to lessen the wages of agricultural labourers. This is only one of the many unfounded assertions against the measure. Such affirmations it is easy to make, but, though they have no foundation in fact, it is not so easy to remove the impressions they may have made on the minds of those who are not thoroughly acquainted with the subject. The decisions of a Board of Guardians are much more likely to be respected by the applicants for relief than the decisions of a parish vestry; they come with greater authority, and from those who, it must be well known, cannot be biassed either by motives of parsimony, or by feelings of personal favour or dislike towards those who apply. The greater part of the applicants to Justices for relief, were those least deserving of it. Such now well know that it will not answer their purpose to go to a Board of Guardians with a fabricated tale.

I cannot, as a guardian, see how a temporary system of Labour Rate could interfere with any of the provisions of the Act, or could in any way be a clog to its well working ; but believe it would be, as was said, a " safety-valve" to the Act.

In the Assistant Poor Law Commissioner's Report of the progress and effects of the Poor Law Amendment Act, in the County of Northampton, there is, in a letter brought into the report, this assertion :—" None but the occupiers of land could understand the nuisance of roundsmen, and the Labour Rate system was worse." I have to say, in answer, that none but the occupiers of land in populous agricultural parishes, can have a just idea of the difficulties and perplexities that arose in the management of the poor before the passing of the Amendment Act. I am free to admit that living in a parish where it was necessary to establish the Labour Rate was a nuisance ; but I must also say that it was a certain remedy for one of the greatest nuisances that could exist in a parish ; that of having, as Moulton had, always some, and at certain times of the year, as many as 40 men, paid out of the parish funds without doing any work, at least without doing any for the parish. I, in common with the other rate-payers, should have considered that person sent as a blessing, who could have instructed us how to put in practice some better system than the Labour Rate, to put these men into work, and to be paid wages by their employers, instead of being paid out of the parish funds. Had I conceived that so effective a measure as the Poor Law Amendment Act was likely to be brought into practice, I should not have put myself to such trouble and expense as I did to further that object, which I then conscientiously believed would render most important services to many populous agricultural parishes. Besides going to London on purpose, when the Labourers' Employment Bill was to be brought forward, I had printed about a thousand letters, which I directed, and sent to members of both Houses of Parliament. Although the Labour Rate system was rejected in the House of Commons, from the mistaken prevailing idea, that all plans of it mixed up relief with wages, I have the gratification to find that all the time and trouble I bestowed on it was not entirely thrown away ;

for I have received the thanks of a person, a stranger to me, who, from having seen my plan of Labour Rate, and thinking it preferable to all others, got it established in a parish in which he occupied a large farm, before the Poor Law Amendment Act came into operation, and thus, he said, the amount of his poor-rates was lessened nearly one-half. As his Grace the Duke of Richmond, and many other noble lords of the Upper House, and Sir Charles Merrick Burrell, and many honorable members of the Lower House of Parliament, were most strenuous advocates for the lawful establishment of the system, during certain parts of the year, I cannot refrain from making these remarks on the assertion, that the system of roundsmen was a great nuisance, but that the Labour Rate system was worse.

None but those who have occupied land in populous agricultural parishes, can be aware of the disagreeable matters which used to be common at parish vestries; there being no uniformity of opinion, it was seldom that any thing effective was agreed on, and when there was, it was only adhered to for a short time. Many years of such vestry meetings have I attended, in the parish of Moulton; often have I left them, regretting that I had made a purchase in the parish. Such disagreeable and ineffective meetings are now happily at an end; and, as few persons have for a greater length of time, given themselves more trouble about their parish poor, few have greater reason to rejoice in the amendment of the Poor Laws.

About twenty years ago, I wrote on the necessity of having Poor Laws in Ireland, as not only being needful and just for the poor of that country, but also in justice to the labourers of this. Had there been Poor Laws in Ireland, such hordes of Irish labourers would not have come over to this country, and have got into those laborious employments, in all large towns, for which the surplus labourers of our populous agricultural parishes were so well qualified, but from which they are cut off, being supplanted by the Irish, who have done (and successfully too), all in their power, to prevent the English labourers from working with them. Had many of our young men left their parishes, some of those early marriages would not have taken place,

and consequently, the population would not have been so greatly increased. In giving Poor Laws to Ireland, it is not only intended to afford relief to the aged and impotent, but to give employment to able-bodied labourers, and I feel convinced that in the present state of that country, no plan would prove so effectual to get the labourers into employment, as to make it lawful, in the intended Poor Laws, for any parish, or district, where the majority of the occupiers of the land shall think it necessary, to establish the system of Labour Rate.

I feel conflicting opinions in my mind on the subject of Emigration. It must be regretted that it should be thought necessary, in times like the present, when there appears to be a superabundance of corn. In my young days, the population of a country was considered as wealth. A full-employed population must ever be so, and it is most certain that the larger the population of a country, the greater the value of the land. Great as the population of this country now is, and likely as it is to increase, I do not think any apprehension need be entertained (assisted as we are by the surplus produce of Ireland), of finding food for the population, without any foreign assistance. A general failure of the cotton crops would be a most alarming event to this country. The really important consideration is, whether employment can be found for a great increase of the number of the working classes. I have heard manufacturers say, that their export trade is likely so to increase, as to furnish employment for a great additional number of hands. I doubt this; for every day they are making alterations in their machinery to lessen the demand for manual labour. I hope my fears are groundless, but I confess that I have serious apprehensions, that there may be, some years hence, great difficulty in finding full employment for the labouring classes. There are numbers of persons living on small incomes, derived from the funds. It would be well if their number could be increased threefold, for in England's vast hive of population, there are, or at least I fear soon will be, too many working bees: the harmony of the hive would perhaps be better preserved by increasing the number of drones. The large capitalists appear of late to be selling out of the

funds, and purchasing land ; if they continue to do so, the number of small fundholders will be increased, and in that number it is likely there will be many that have been working bees, but who, from the effects of their industry and prudence, are enabled to become drones, and thus be useful members of the community, their dependence being on the welfare and stability of the state.

ON BENEFIT CLUBS & SAVINGS' BANKS.—The carelessness of the young men, for many years past, of doing any thing to provide for their future wants, has arisen from their ideas of right of claim on their parishes ; and knowing that if they had any property, or were in a Benefit Club, parish relief would, in all probability, be withheld from them, when, from ill-health, they were incapable of work. Few, therefore, of the agricultural labourers have, of late years, entered into these Clubs, or saved any thing to provide against future wants. Benefit Clubs are good institutions, and ought to be encouraged. Parishes ought to allow a weekly sum, half, at least, that they would have allowed, if not in a Club, to every one belonging to the parish, so long as he shall be receiving the sick allowance from the Club.

Savings' Banks are admitted by all, to be excellent institutions. Before they were talked of in England, an intelligent person, then residing in Northampton, with whom I used to have much conversation, told me that he thought it would be productive of much good if there were banks established to receive small deposits from servants and the working classes. I immediately entered most warmly into the idea, having at that time known of several cruel losses sustained by some persons, through their lending, on interest, the whole of their savings to small tradesmen, who afterwards failed. We were informed by an active and intelligent Physician, who then resided in Northampton, that a Savings' Bank was about to be formed in Scotland. We three therefore set to work and framed rules and regulations for one at Northampton before we asked any other person to join us : and few men ever gratuitously laboured much harder, night after night, (for neither of us could give up our time in the day), till

we had finished the task we had set ourselves. The Northampton Savings' Bank therefore, was, I believe, the second which was established in England.

I was the first person who suggested the idea of engrafting on the Savings' Banks, deferred small annuities, to be obtained by small monthly sums being paid into the Savings' Banks. An act has been passed for this purpose, but it has completely failed, as I felt assured it would, from the depositors being allowed, at any time, to withdraw their deposits. My proposition was, that deposits should not be withdrawn, and that if the depositors died before the time that their annuities were to commence, all the amount of their deposits were to lapse into the annuity fund. Without this chance of benefit of survivorship, tempting terms to depositors could not be held out. I feel assured that every one who will give his attention to this subject, will be convinced of the great benefit which would result to the public, if numbers of the lower orders were to become annuitants, by which means their private interest would become inseparably connected with that of the state.

It has lately occurred to me, that it might perhaps be practicable to make arrangements to add to the present system, a Naval Savings' Bank, that Captains of ships should be enabled, on the wish expressed of those under their command, to transmit, from time to time, such part of their pay as the sailors should be desirous of depositing in any Savings' Bank they might fix on. I give this idea, without entering into further particulars, for the consideration of those who may think it worth notice. It is quite distressing to hear such frequent accounts of sailors, on their return to their country, being robbed of their hard-earned wages. If my suggestions could be carried into effect, these poor fellows would not have to receive from their commanders, on their return home, large sums of money to be robbed of; or, encouraged by the harpies by whom they are surrounded, to be in a state of beastly intoxication till all their money is squandered away, and they become poor destitute beggars, until they can get out to sea again.

I have often heard it said, "that farming is yet in its infancy," meaning, as I suppose, that such great improve-

ments in agriculture will probably be discovered as to make all land yield a larger quantity of produce than it now does. That the greater part of the land of this country, by a better system of cultivation, and with more manual and horse labour, might be brought to produce more than it has hitherto done, is most certain. But I cannot conceive how that land, which is now cultivated in the best manner known, can be made to produce much more, unless it should hereafter be found possible, as some imagine it will, to make the land yield a larger quantity of produce by chemical means. Much very weak corn land is brought to produce tolerably good crops by thick sowing, and by the application of large quantities of manure, but if this is done on good friable land, the result will be, unless it should be a dry summer, a great bulk of straw, yielding a short quantity of inferior quality of grain. Nature will bear forcing, but not beyond a certain limit. Crops of corn, to be brought to perfection, not only want nourishment from the earth, but from the air also. By the drill-system, weeds can be eradicated from corn crops; thus, all the nourishment which the earth affords, goes to the corn, and the necessary free circulation of air is let in to the crops. Believing that where the present best known system of agriculture is pursued, the land is forced to nearly the utmost extent that it will bear, I do not fully assent to the idea that farming is yet in its infancy. I am at a loss to conceive how my small farm, of 150 acres, is to be brought to produce more than it has for some years (when there has not been a dry summer), without some chemical aid at present unknown. I ought, however, to mention, that I never sold any hay or straw from it—that on an average of twenty years, I have annually bought and consumed, in stall-feeding, a hundred pounds' worth of hay and oil-cake. In my present small scale of farming, I find a donkey and cart most useful.

It is not improbable that at some future time, a greater quantity of grain may be raised in this country, by the introduction of some new and more prolific varieties than we now have, which, by continued close examination into growing crops, might possibly be obtained. It is a good fair ear of wheat which contains more than fifty

grains. One of my men found in my wheat-crop this year, an ear which contained 105 grains. Wheat grows in tiers, up the ear, each tier commonly containing three grains ; in this extraordinary ear, each had six grains. Had I got possession of this fine ear, it should have been carefully planted this autumn, each grain singly, and should the produce have proved a more prolific kind than usual, I should have continued its cultivation with the greatest care, in order to circulate it. It well answers the purpose, in all grain intended for seed, but more particularly wheat, to run it an extra time through the winnowing machine, to clear it of all the small and light grains, for although most of these would grow, they produce a shorter and weaker stem, with a small ear, in which are grains of no value, and thus encumber the crop to no purpose. It is judicious to sow none but the best seed, for, excepting in unfavorable seasons, as you sow, so shall you reap.

Any important discovery to improve agriculture, is more likely to have its origin, or at least to be carried into effective practice, in England or Scotland, than in any other part of the world, and this, chiefly because the produce of the land is of greater value than elsewhere. With an unrestricted importation of foreign corn, the energies of British cultivators of land would be repressed ; they would not be likely to endeavour, by any extra means and expenses, to increase their quantity of produce, when they were not repaid the expenses of cultivation for what they had raised. If the price of British corn is to be brought down to a level with continental prices, the same unexpensive modes of cultivating the land must be pursued in England as on the Continent and the same amount of wages paid to labourers. Neither of these can take place ; our climate preventing the one, and our great national debt, which lowers the value of labourers' wages, the other. The columns of newspapers may be filled with articles against the Corn Laws, many Borough Members of Parliament may be obliged, contrary to their opinions, to vote against them, still, I do not believe that a majority, in either House of Parliament, would vote for their abolition. If they were abolished, the superiority which British agriculture now possesses over every other part of the world, would no longer exist.

Scotch farming, which I regret never having had the opportunity of seeing, is highly spoken of. As the Scotch are a most industrious and persevering people, it may fairly be concluded that the general cultivation of the land in Scotland may be superior to the general cultivation of England; but were modes of cultivation known and practised there, superior to any in England, as many suppose, some large landed proprietors would not, most probably, have sent their bailiffs to Holkham, to see the system of husbandry carried on there. Scotch one-horse ploughs are highly spoken of; I never saw one, but can conceive that they may be most useful implements, on light soils. The drill system, which was introduced at Holkham, and Woburn Abbey, about forty years ago, may be considered one of the greatest improvements in the cultivation of land; for, it is not only the means of having a less quantity of what is called tailing corn, but it enables the cultivator to keep the land cleaner than the broadcast sowing will admit of; this forms the real difference between good and bad farming.

Perhaps the most important introduction into British agriculture was the Swedish Turnip. It is my belief that without this valuable root, a sufficient quantity of animal food could not have been produced for our present population; but with this, the fear of not having a sufficiency to answer the demand of an increasing population, need not be entertained.* Mangel Wurzel was also a valuable introduction, but will never come into such general cultivation. There is much hazard in the plants getting above ground, but afterwards there is but little more trouble with the crop than with Swedish turnips.

Farming, in former times, was neither the active nor the thoughtful employment it has now become. I cannot refrain from calling the attention of those young men who are not willing to enter into any other line of life, to an extract from my printed address to the members of the Northamptonshire Farming and Grazing Society, dated Sept. 12, 1828:—"It is an old remark, that there are two ways of

* In page 16, the seven lines which precede Swedish Turnips ought to have come after.

farming, 'Go ye,' and 'Let us go.' The more young farmers, who have only their business to depend on for their living, bear in mind the latter way, the better; for it will be found as much more effective as it must be in a regiment of soldiers, when the commanding officer, in battle, says, 'Go along, boys,' instead of 'Come along, boys.' In saying thus much, I do not mean that it is necessary the young farmer should be constantly working with his men: it is his eyes, not his hands, that are so requisite where his men are employed."

With the present corn-laws retained, corn might advantageously be produced on bogs, either in this country or in Ireland (after having been properly drained), by the application of large quantities of lime, which has the power of so decomposing a soil formed of decayed vegetable matter, as to make it capable of producing good green crops, and afterwards fair crops of corn and clover: but to continue its yielding this produce, such land needs all the straw brought back, converted into good manure, and also to be frequently invigorated with lime.

Many improvements, of late years, have been made in agricultural implements, and in this age of invention, many others may be expected. I confess that formerly, with the old system of Poor Laws, when we, who were living in populous parishes, were plagued beyond measure to find employment for the labourers, I felt reluctant to use machinery, to lessen the demand for manual labour. It is however quite necessary farmers should raise their produce at as little expense as possible.

The printer (much to my mortification), having been obliged, for three months, to stop in his progress of this work, I am enabled to give some further account of the manual thrashing-machine, spoken of in page 33. It is the invention of John Corby, of Castle Ashby, in this county. The price, to thrash corn only, £10; corn and clover, £13. Mr. William Walton, bailiff to the Marquis of Northampton, was the first person to make use of them, from whom I got the following particulars. It is necessary to have three men, two to turn and one to feed it, occasionally changing their situations; and two boys, one to untie the sheaves, the other to take away the straw. Thus

worked, it will thrash between five and six quarters of wheat, a-day, and more of barley or oats. Those constructed to thrash clover, as well as grain, have been found to answer the purpose. My object in having one of these machines is, to thrash wheat when the weather is bad, in spring or summer, and to employ my men, when not wanted in the field. In the winter, I shall prefer the use of the flail, to get the daily necessary quantity of barley or oat straw, for the cattle in the farm-yard. The machine occupies only a space of five feet by three.

Having omitted, in page 85, to refer to what I conceive to be injurious to growers of corn, and also to consumers, I insert it here. It is, the different measures by which corn is sold, in different markets. In most of them, it is by the quarter of 8 bushels, but in some places the bushel contains $8\frac{1}{2}$, and in others, 9 gallons. In many markets by the load, meaning in some, a man's load, of five bushels—in others, a horse load, of five quarters. In Norfolk, by the coomb. These different measures have most likely been customary from time immemorial, but this is no proof that at present it is not both perplexing and injurious. All the returned prices of corn are by the quarter, and there is no doubt but mistakes are frequently made in calculating the price from these various measures; therefore the farmers in one part of the country are frequently misled in the prices quoted from other parts. The measure should be the same throughout the country, by the quarter, containing 8 bushels, of 8 gallons each, imperial measure.

The act which passed about three years since, to make the stone of meat 14lbs. throughout the kingdom, and which escaped the notice of the majority of those it concerned, has proved a dead letter. All the dealings in Smithfield are by computation of stones of 8lbs. for which there can attach no penalty. The London prices and weights will ever govern those of other places. All the meat sold there, and prices returned, are by stones of 8lbs. It is desirable, therefore, that the act should be repealed. The London butchers have now excellent times, for, excepting the very coarse parts, they get a much higher price for their meat than the country butchers; and, take one time with another, they buy their sheep and oxen quite as cheap, if not cheaper, Most of those I have

sent to Smithfield this spring, I could have made a higher price of in the country. The graziers in this part of the country sadly mistook their own interest, in opposing the Islington Market.

What ungrateful creatures must we be, if we are not most thankful for the numerous comforts and blessings we daily and hourly receive from the Almighty Ruler of the universe. Man has every thing he can reasonably wish for ; but, according to that sentence he received, so full of wisdom and of mercy, not without his own exertions ; the corn, not without his labour in ploughing and sowing ; the meat, not without his care in providing winter food for the animals ; clothing, not without his toil and ingenuity in its manufacture ; nor fuel, without digging into the bowels of the earth for the chief part. How wisely is it thus ordained. Were it not so, man, from the tendencies of his evil nature would, if left to perfect idleness, be worse than a beast. Among those whose minds are directed as they ought to be, there is perhaps no class more likely to be oftener reminded of the kind ordinations of Providence, than those who are engaged in the cultivation of the land. Every thing loathsome to man, becomes, by applying it properly to the earth, nourishment both to the grain which produces his bread, and to the grass for the animals which produce his meat. Every noxious weed may, by labour and contrivance, become manure to enrich the land, and thus may even an enemy be turned into a friend.

For many years past, I have lent my willing though feeble aid, in endeavouring to promote the advancement of the practical knowledge of agriculture, by occasionally writing, under various signatures, in different periodical papers ; but, having now finished a second edition of my little work, which, at the close of the first, I had no idea of undertaking, it is, in truth, my real desire never to write again for publication, fully conscious that such employment engrosses the mind far more than it ought, at my advanced age. To others, therefore, I leave the pleasant task of pursuing a subject, which to myself has been a source of continual pleasure and amusement. If the result of so many years study and practice of this most useful science, should prove in any way advantageous to my readers, it will afford me lasting satisfaction.

ERRORS AND ADDITIONS.

In page 9, Ribbing is wrongly described.

In the first line of page 61, "make" should be "made."

In page 53, the stall-feeding evening feed, of half a bushel of cut hay, mixed with meal, has been omitted. The weekly consumption of each beast being five gallons instead of three, brings the weekly expense to 1s. more.—[A pint of fresh-made linseed oil, sprinkled over $4\frac{1}{2}$ bushels of cut hay, mixed with nine quarts of meal (a feed for nine beasts), gives a flavour to the whole which induces them to eat it with great avidity].

Page 15; in mixing mangel wurzel leaves with straw, nearly each leaf should be separate, or the whole will rot.

I wish to add, in page 47, on cattle-breeding, that grey Hereford bulls are to be had of Mr. J. Price; also, that I think it is worth the consideration of the Durham breeders, who intend having one cross with the Herefords, whether it will be most to their advantage to keep their breed distinct in appearance, as it now is, from Herefords, or endeavour, in colour, to resemble them.

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15	135	77 2	13 10	21	189	108 0	18 18
16	144	82 4	14 8	22	198	113 2	19 16
17	153	87 6	15 6	23	207	118 4	20 14
18	162	92 8	16 4	24	216	123 6	21 12
19	171	97 10	17 2	25	225	128 8	22 10
20	180	102 12	18 0	26	235	134 4	23 10

169, Piccadilly, June, 1837.

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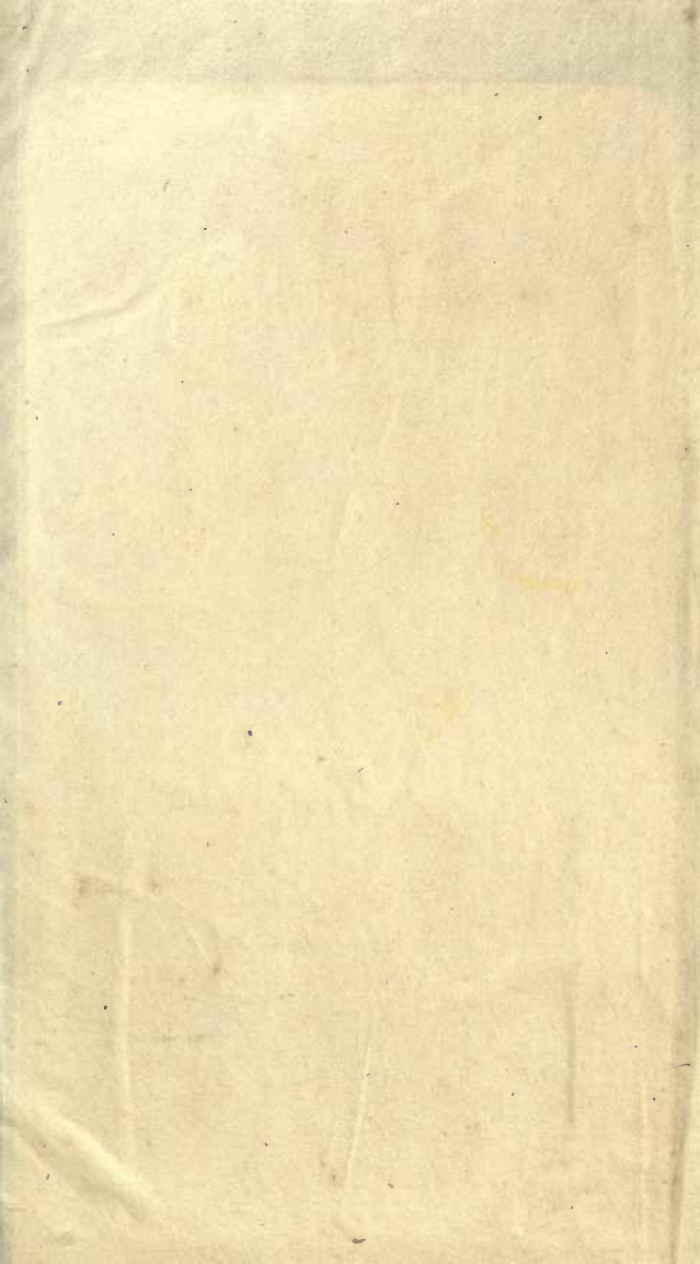
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